

AMERICAN ARTISAN and Hardware Record

Vol. 82. No. 5.

620 SOUTH MICHIGAN AVENUE, CHICAGO, JULY 30, 1921.

\$2.00 Per Year.

"YANKEE" VISE



THREE SIZES

With Detachable Swivel Base

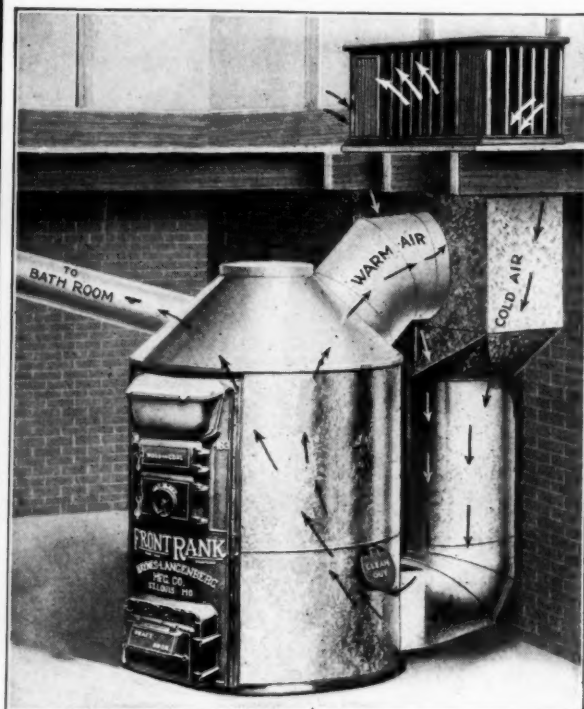
Three Sizes:	No. 1991	1992	1993
Jaw Opening.....	1½"	1 15/16"	3½"
Height Over All.....	3½"	4½"	5¾"
Length Over All.....	4½"	6"	8¾"
Net Weight	3 lb.	6 lb.	14 lb.

THIS vise is accurately machined on the bottom, sides and end, for use in holding work in several positions on drill press, shaper, etc., allowing it to pass through several operations before necessary to change it in the vise. An entirely distinct feature in vises and one that is quickly appreciated by Tool Makers, Pattern Makers, Machinists and every man who uses good tools.

"Yankee" Tools Make Better Mechanics

Your Jobber Can Supply You

NORTH BROTHERS MFG. COMPANY
PHILADELPHIA, PA.



A FRONTRANK[®]

TRADE NAME REGISTERED

COMBINATION OF BEAUTY AND UTILITY

Furnacemen will find this combination simple and easy to sell and install, as well as a most efficient heater, very pleasing to the owner.

WRITE TODAY

If desired, we will gladly plan every installation for you.

HAYNES-LANGENBERG MFG. CO.
4058 FOREST PARK BOULEVARD
ST. LOUIS, MO.

*The Advantages
of Selling
This*

Powerful Heater

YOU sell a real heater when you sell a Niagara. A heater that is high grade in all respects.

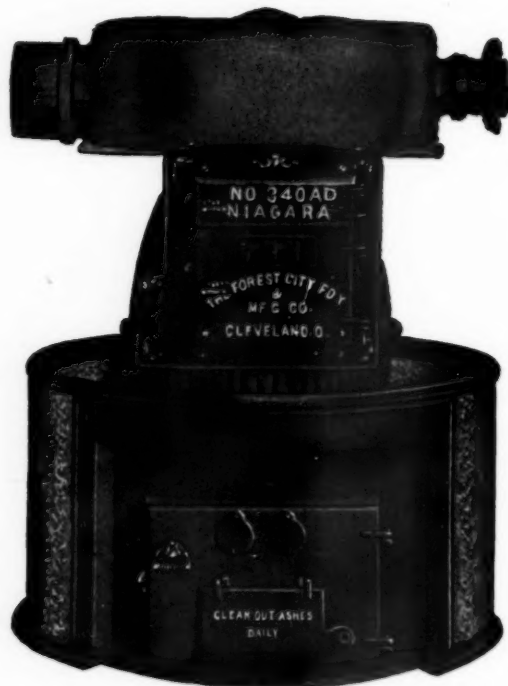
Notice the large feed doors and unusually large radiating surface.

The fire pot is very deep and made in two sections.

All the joints are deep cut joints, accurately fitted, making them gas and dust proof.

The Niagara Warm Air Heater is distinctive because of its massiveness and exceptional durability.

These features make it a powerful heater, a heater that your customers want.



Write us today for particulars
on agency for our complete line.

Forest City Fdy. & Mfg. Co.
Cleveland, Ohio

FOUNDED 1880
BY
DANIEL STERN
Thoroughly Covers
The Hardware, Stove,
Sheet Metal, and Warm
Air Heating and Venti-
lating Interests

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DELIVER THE GOODS OR QUIT.

At a recent luncheon of the Advertising Post of the American Legion in Chicago, R. H. Donnelley, head of the great publishing and printing house of Reuben H. Donnelley Corporation, spoke on the work that advertising men must do to bring things back to "Normalcy."

One of the points emphasized by the speaker is applicable to every man who makes or sells anything—whether it be advertising, hammers, tin plate, crackers, clothing or anything else—viz., that the period through which we are passing now is one which will cause a sharp division line to be defined between the man or the organization which "delivers the goods," and those who, because of inability, or unwillingness, or carelessness, fail to render a fair service.

Because of the smaller amount of buying which is being done, there is naturally more opportunity for choosing—for selection, for discrimination—on the part of the individual buyer as well as by the general buying public.

The merchant who has the mistaken idea that he can continue in his slipshod ways of doing business and still receive a proportionate share of such money as is being spent, is already showing signs of losing out—as indicated by the increasing number of failures.

The manufacturer who has not awakened to the fact that this is a "buyers' market" and who has not adjusted his selling organization to the new condition which requires creative advertising and creative salesmanship, is having a hard time keeping his business going.

The consumer demands a service from the retailer that will make it possible for the former to purchase what he needs at a price that will allow him to keep his living costs below his income.

The retailer demands a service from the wholesaler and the manufacturer which will allow him to serve the consumer as the latter has a right to expect, and at the same time make it possible for the retailer to realize a fair profit on his business.

This may mean smaller orders for the manufacturer and wholesaler at lower prices than are ruling now in many cases.

It may also mean lower margins of profit in many instances for the retailer.

In the last analysis, it means more aggressive selling methods on the part of all who are engaged in distribution of merchandise.

If the manufacturers' or wholesalers' salesman finds that the retailer has too much on hand of certain goods, it means that this salesman must help the retailer find a way to dispose of his overstock.

A mere suggestion may sometimes be sufficient, but it is up to the salesman to provide that suggestion—or he will lose out on his order—and every lost order for new goods is just one more obstacle put in the road toward the return to normal prosperity.

The retailer, on the other hand, must change his attitude of "waiting for trade to come to him," into one of aggressive development of sales—either of new lines, or of old lines to new customers: He must keep on "seeking" business and supply the necessary incentive for prospective purchasers to buy.

He must advertise regularly.

He must make specific offers of merchandise at definite prices.

This is a period of "the survival of the fittest."

You must prove your right to survive as a manufacturer or distributor.

Deliver the goods or quit!

Random Notes and Sketches

By Sidney Arnold

H. E. Doherty of the Detroit Safety Furnace Pipe Company was visiting a sheet metal contractor this week. The contractor told him that he was leaving the next morning on a automobile trip and would arrange the journey to reach Grand Rapids in time for the outing of the State Association.

The contractor's little girl added a clause that night to her evening prayer, as follows:

"And now, dear God, good-by, for I am going to Grand Rapids."

* * *

In many cities a campaign is being waged which is entitled to the hearty cooperation of every man and



—Buffalo (N. Y.) Evening News

Help Him Get a Job.

woman who employs labor and of everybody who is in position to help in some other way. This campaign has for its purpose that of securing employment of ex-service men, many of whom are out of work. When we think back three years, we have to remember that some of these men were in the thick of the battle around Chateau-Thierry, in the Argonne forest, on the Marne, or at other places where there was a chance of death or serious injury. Others were in training camps in this country. Others were braving the attacks of the U-boats. All of them were placing themselves at the disposal of their country.

Today, because of our indifference, altogether too many of these men have been forced to a condition of real need and suffering.

It is time for you to do what you can to alleviate this condition.

Help an ex-service man to get the job that he can fill and thus in a small measure pay back to him what you owe him for his sacrifice.

* * *

If any hardware man thinks his troubles are overwhelming, let him forget them by comparison with the tragedy set forth in the subjoined conversation, reported by my friend D. Wray DePrez of Shelbyville, Indiana, President Indiana Retail Hardware Association:

Ethel: "What's the matter, dear? You look unhappy?"

Edith: "Oh, such hard luck! I married Dick for alimony, and then I had to go and fall in love with him, and now I know it will just break my heart to divorce him."

* * *

I was glad to note the other day that the Department of Justice is taking steps to have a thorough in-

vestigation made of the methods pursued by officers who acted as buyers for the Government during the World War, such as for instance, in connection with the purchase of harness and with the disposal of surplus stocks of the Army.

There were all sorts of ugly rumors as far back as the late fall of 1917, that exorbitant prices were being paid for harness and animal drawn vehicles, the purchasing of which was made under the supervision of the then Depot Quartermaster at Jeffersonville, Indiana, Colonel W. S. Wood, and that these prices were recommended without any real investigation as to their reasonableness or as to their relation to cost of labor and material.

When this department of the Procurement Division of the Quartermaster Corps was moved to Chicago, in June, 1918, an attempt was made to have the inspection made by men controlled by the Chicago office, although the responsibility for acceptance and payment was to remain with the Jeffersonville Finance Office, but owing to the aggressive objection of Colonel Robert B. Powers, now retired, this was frustrated.

What might have happened as to the quality of material furnished if the attempt had been successful, can only be imagined.

Doubtless there are those who would prefer to have all such investigations stopped, "because the war is over," or because such investigations might result in unjust reflections being cast upon the honesty and integrity of some officers and others with previous good records, but it seems to me that the only way to dispose of ugly rumors, such as are floating around now, is to dig down and find out if there really is anything behind the talk.

If there is no real foundation for the rumors, the sooner these men will be cleared, and they ought to be the first to demand a thorough investigation, instead of trying to put obstacles in its way.

* * *

Louis Heckler, one of the best known hardware dealers of Pittsburgh, Pennsylvania, believes that school teachers are the poorest paid professional workers in America. Hence, he finds a sting as well as a laugh in this story:

"Henry," said Mrs. Dubwaite, "a ragged tramp came to the house this morning who could quote Shakespeare."

"And you gave him something to eat?"

"Yes."

"That's right. He may have been a retired school teacher."

* * *

A Plodder.

He toiled along and did his best,
At evening laid him down to rest,
By dalliant breezes still caressed,
And dreamed away his cares.

At morning's dawn he rose again,
To face the sunshine and the rain,
Bright happiness or darker pain,
As one who bravely fares.

A patient round from day to day—
And so life's measure slipped away,
But no one ever heard him say
The stones had bruised his feet.

—Birmingham Age-Herald.

Verity Says That Readjustment Has Been Three-fourths Accomplished.

President of American Rolling Mill Company Believes That We Are Now on Way to Renewed Prosperity.

The following statement by George M. Verity, President of the American Rolling Mill Company, Middletown, Ohio, which was published recently in the *New York Commercial*, one of the leading industrial and financial business papers of the United States, is of such importance and so full of inspiration that we feel our subscribers will read it with much interest—and act upon his challenge:

"This is indeed a time for strengthening the morale of the workers of the nation.

"Nothing can possibly be gained by undue pessimism or by magnifying the ills of the times.

"There is no mystery about the present situation. The war carried us to extreme heights of inflation and then after a very brief respite, we went up again to greater costs and higher prices."

"Going up is usually exhilarating, but the coming down is tedious and often distressing.

"We have been making the return trip ever since last November, and we still have some distance to cover before we arrive at the foot of the mountain we were six years in climbing, where we can start up the next incline of full employment and more prosperous conditions.

"There never was a time in the history of the world when there were so many important, complex and perplexing problems to be solved—but why be dismayed or even discouraged?

"It requires large tasks to develop the full strength of men and of nations—nothing else can do it.

"The men and the women of the civilized nations of the earth have just won a world war, so gigantic in its proportions, so horrible in its details, so tremendous in its cost, so tragic in its results, as to fairly stagger imagination.

"The task that faced each nation as it entered the war was stupendous, but its men and its women bared their backs and one and all acclaimed, 'They shall not pass.'

"If humanity can win in such a tragic ghastly enterprise, it is not going to be shackled or even checked in the solving of the problems of peace.

"These are, however, times that require the same spirit of sacrifice and determination that was contributed so generously by all in the winning of the war. Each must see his or her part and do it promptly and resolutely, in order that we may get back to a period of profitable employment for all at the earliest possible date.

"Labor is responding to the need of getting back to somewhere near pre-war levels, and as a result, costs of production are rapidly reaching bottom, where prices can be made that will bring a complete return of confidence on the part of the buyers of the country.

"The railroad situation is improved, but still re-

quires much of readjustment and of constructive up-building to meet the need of the nation.

"Agriculture was stunned by the sudden and drastic reversal of conditions, but it has weathered the storm and bids fair to be the first to fully recuperate.

"Our financial system has stood the strain splendidly. It is readjusting itself to meet the need of the present situation and it will see us through safely.

"In my opinion, seventy-five per cent of this most unpleasant 'road of readjustment' has been traveled and seventy-five per cent of the cost paid.

"A strong steady 'all pull together' can soon complete the job.

"Our President and his Cabinet, supported by the legislative branch of our Government, are facing the problems of taxation, tariff, and readjustment of national and international affairs courageously and effectively.

"Of the many good things begun, the move for international disarmament stands out as the most constructive, the most enheartening, and the most promising, as regards both the peace of the world and the lessening of the burdens of taxation.

"If we will but give our most earnest, sincere, patriotic and constructive President and his counselors our undivided support and will each of us earnestly strive to see and to do our part in completing the readjustment that is still to be accomplished, we can by the beginning of the new year, face the future with every prospect of a gradual, but certain return to the most soundly prosperous conditions our great nation has ever enjoyed.

"We have the wealth, the natural and material resources, the brawn and brain, to meet and overcome every obstacle and to complete the building of the greatest peace-loving and constructive nation in all the world.

"March on."

Facts Cannot Be Ignored Without Fatal Effect.

The wise man neither ignores nor guesses; what he does not know *he finds out* before he takes a step towards his goal; because he knows that the perfect plan is made up of many parts which have been long in the making and in the fitting together, and that a single imperfect part or one left out entirely, may—and most often will—render void all the planning and the labor that have led up to and beyond it. And so he ignores nothing, however insignificant it may seem, because he knows that a huge bridge has broken because of a frayed wire; a mighty machine has been wrecked because of an air-bubble in a casting; that fortunes have foundered, and human lives have been lost, because someone ignored some tiny vital fact that *was*, and would not be ignored!—*Personal Efficiency.*

Every Customer for Tools Is a Good Prospect for a Tool Chest.

Jerry Tells How to Develop Sales of Tool Chests to Chance Customers for Tools.

Written for AMERICAN ARTISAN AND HARDWARE RECORD by Jerry Getlock, Hardware Merchant.

While I was in the Army—in 1918—I saw a big stack of tool chests of various sizes and styles. The storekeeper in charge of the warehouse of the Quartermaster Corps wherein this stack was, told me that he had taken in something like 40,000 of them that summer and that he had heard that at least as many more were coming.

That certainly was a bunch of tool chests, and it put a notion into my head:

"Why doesn't the average hardware dealer make an effort to sell tool chests?"

Of course, I know that most hardware stores that

tion to our stock and the population of our trading territory.

"As you may have noticed, there is a rather large department store in this city. This store has a good sized hardware department and sells quite a lot of tools, too, but if you have time to go over there you will find that they feature low-priced stuff—private brand saws, no-brand hammers, planes, chisels, etc.

"So far as competition with them on a mere price basis, I made up my mind that I would not go along on that line, so the only thing left was to emphasize the quality of our tools, and that decision, I believe, was



Attractive Window Display of Carpenters', Blacksmithing and Machinists' Tools, All of One Make. Arranged for the Edwards & Chamberlin Hardware Company, Kalamazoo, Michigan.

make any pretense of catering to tool buyers also sell a few tool chests but I have found comparatively few hardware merchants who go after this business with a real sales plan.

So here is an idea which I have seen worked out to good advantage—both with regard to bigger sales of chests and also to increased sales of tools of all sorts.

I am indebted to the same fellow, Jones, that I mentioned in my third story for the information. He makes a specialty of selling high grade tools to the "handy-man-around-the-house," and of course sells also most of the tools that are bought by the regular mechanics in his town.

This is what Jones told me:

"About four years ago, I made up my mind that we were not selling as many tools as we should in propor-

the best thing that happened to our store, for we have succeeded in making a very large portion of the people here in town and of the farmers in our trading territory realize that 'Jones' is the place to patronize for really good values in tools.

"And this is how we worked out our campaign:

"Let us suppose that a man—not a mechanic—wants to buy a hammer. We show him a Vanadium steel hammer, made by Vaughan & Bushnell Manufacturing Company, Chicago, pointing out how well balanced it fits into his hand and calling attention to the beveled grip of the claw which takes a real, firm hold on the nail so that you can actually pull it through an ordinary piece of wood pointed end first, while with most hammers the grip is so light that often the head is pulled off, thus making the extraction of the nail still more difficult.

"The customer will naturally ask what it costs. We get \$2.25 for the 16-ounce size. Frequently he will object that the price seems so much out of proportion to hammers that he has seen in the department store, but when we remind him that the two weak points in almost any other kind of a hammer—the claw and the head—are the two strongest features of the 'V. & B.' hammer because they have been separately heat-treated, tempered and tested in the most painstaking manner he usually digs down in his jeans and pays the price: He wants a tool that he can depend on. He knows that a hammer made of ordinary steel treated in the ordinary manner will chip off in the head or that the claw will break with a very ordinary strain, or that the 'eye' is weak.

"Incidentally, we point out the little patented 'wax hole' in the end of the handle, and tell him that if he waxes the point of his nails they can be driven into the hardest kind of wood with ease. He knows from experience that nails are apt to bend in that sort of wood. That little feature is exclusive with the 'V. & B.' hammers.

"All right; he has bought the hammer. Here is a screwdriver made by the same manufacturers. It is just as much superior to the ordinary kind as the hammer he just bought is to the common cheap hammer. He doesn't need a screwdriver now, but he could use a brace.

"Very well; take a look at this one. I want you to note particularly this patented key of the socket frame attachment. This special arrangement absolutely prevents all the troubles you find in the brace with the old-fashioned end screw attachment. And between the socket and the socket frame there is a patented ball-bearing device which reduces friction, thus preventing wear and insuring smooth operation of the ratchet.

"You may have had trouble with the bits working loose from the jaws. That is also one of the pleasant things about this brace: The jaws are milled the long way and you simply can not work the bit loose no matter how hard you try, unless you first unscrew the housing. The price? For this size we get \$5.00, and it is a mighty fine brace for such a reasonable price.

"Isn't there something else you want? All right, that will be \$7.25. Thank you!

"Before you go, please let me have your home address, so that I can send you some of the little books we have our manufacturers furnish about the various tools and how to make the best possible use of them, how to care for them, etc. You will want them, I know, for you appreciate a good tool. Thank you very much.

"That man's name goes on our regular mailing list for tools, and whenever we have something in the way of advertising material in that line, he receives a copy. Twice a year we also send a special letter to him telling about some of the new items, etc., with the result that he thinks of Jones first whenever he needs a new tool.

"One of the first things we find out is whether he has a tool chest. In most cases, of course, he hasn't, but as time goes on and as he adds to his collection of tools he gets nearer to the point where he simply has to have a chest and frequently he brings the matter up himself.

"But he isn't left to decide that for himself.

"No, sirree, in the latter part of November or early in December, he gets a letter suggesting that this is a good time to present himself with a Christmas gift in the shape of a good chest for his tools, and about the middle of December we have a special sale on chests, the announcement being addressed to the wife, thus giving her an idea and making her work for us, too.

"Then, in the Spring, when there is a good deal of repair work and fixing up of screen doors, window screens, flower boxes, Mr. Tool Buyer receives another letter calling his attention to the advisability of having a fixed place for his tools, and that, too, brings good returns."

Jones knows what he is talking about. The growth of his tool business shows that his theories work out in practice—and that is the real test. You may have to go about it in a somewhat different way, but the main thing is that if you haven't done much to speed up sales in your tool department you are losing a lot of sales and profits that now go to the department store or mail order houses—because these concerns go after the business, even if they do not make much of a pretense of selling a man what he really ought to buy.

There are lots of people in your town and among the farmers who will buy good tools, but it is *your* business to see that they get to know why they should buy good tools instead of the cheap stuff—and at the same time you will, of course, induce them to come to *your* store for these good tools.

The window display shown herewith was arranged for the Edwards & Chamberlin Hardware Company, Kalamazoo, Michigan, and a fine example of the art of window advertising. An interesting feature is the fact that all the tools displayed are made by one manufacturer, the Vaughan & Bushnell Manufacturing Company, Chicago. There are hammers for carpenters and machinists; blacksmith tools of all sorts; cold chisels; braces, etc.; all of them displayed in a very effective manner, on card board posters, in groups or singly.

In the background, a number of tool chests are shown, thus bringing out the suggestion that every user of tools should have a safe place for his tools.

Organization Contemplated to Provide Protection Against Dishonest Employees.

Considerable agitation for a national protection against burglars and dishonest employees was evident at Louisville during the recent Annual Congress of the National Retail Hardware Association.

George Fiel, Secretary of the New England Association, during his talk on membership service, told of the protection which that organization is giving its members through a department created for that purpose which is run under the supervision of the William J. Burns International Detective Agency, Incorporated. Mr. Fiel said that the cost of such a service was very small and that it had been very effective in New England.

It is said that the Michigan Retail Hardware Association has already formed plans along the same lines.

False Economy always Exacts its Penalty.

Personality and Facts Properly Presented Will Sell Enameled Ware.

Miss Mildred C. Shaw Says, Know What You Are Saying and Say It Cheerfully.

The Associated manufacturers of Enameled Ware recently conducted a contest among retail salespeople, the purpose of which was to bring out some of the salient selling facts about these very useful utensils.

One of the prize winners was Miss Mildred C. Shaw, with Radford B. Smith, Bridgeport, Connecticut, whose article follows:

Miss Shaw's Observations.

A couple of years before entering a store as a clerk, I was seated about the noon hour at a magazine counter of a large department store.

A couple of ladies came in, one a country woman, plainly clad and a stranger. The other one was of the city type, fashionably garbed and, having been greeted pleasantly by the clerk, priced goods for twenty-five minutes or more, then purchased a spool of thread, saying she had forgotten her purse and "just charge it."

During this time the plain and neglected stranger looked at several articles, then stepped to a side aisle, took from an inner pocket a roll of bills, placed several of these in her purse. The city lady having made her departure, the clerk approached "Mrs. plainly clad" and inquired what she wanted. Answering, she said, "Thanks, my time is limited, I shall go elsewhere."

This incident so impressed me that I promised myself I would never neglect welcoming all shop visitors, no matter how long I was kept busy with other customers.

I find that intuition, with observation, and persistent effort, and a kind and pleasing personality are required to sell and to climb. I have come to look forward to return visits.

As I love to handle pret-

ty cooking utensils and find it a great pleasure to prepare a meal, I selected the enameled ware counter for my own department. I make a thorough study of the wares so that I know the values. I arrange my wares artistically on the counter and shelves, rearranging in order that the display may be different from day to day.

To be candid and truthful are two of the greatest

factors in gaining friends in your shop career. I endeavor to greet all classes of people who come within speaking range, and put forth my very best and untiring efforts to please my prospective customers. If a customer enters while I am waiting on another party, I always tell her that I will be at her service in a very few minutes, and if the opportunity presents itself, I inquire what she desires and hand her the article for examination. During this time I do not lose any time in speaking of the durability and other excellent qualities of the ware. I tell how the porcelain-like enamel is fused on at a very high heat over solid steel frames, thus leaving a smooth surface which acids will not affect, etc. I point out why it is easily kept clean and sanitary. In this way, I do not have to repeat the explanation to those who are waiting to be attended to.

It is a good plan to let the prospective purchaser do most of the talking until I get a clear idea of what she desires, and many times I find that I can submit other articles also which I feel sure will be useful in the home. This adds to the sales and many leave with several pieces when they only intended to purchase one. I always endeavor to have in stock the very article the prospective customer

20% DISCOUNT SALE ON ENAMEL WARES



A VERY high grade Enamel Ware of Azure Blue Color, attractively Marbled and lined with white enamel—acid proof, smooth and easy to clean.

Rice Boiler
Capacity 1½ qts. : : : \$1.40
2 qts. : : : 1.58

Coffee Pots
Capacity 1½ qts. : : : \$.80
2 qts. : : : 1.00

Maslin Kettles
with cover and self-locking ball
Capacity 5 qts. : : : \$1.16
6½ qts. : : : 1.58

Convex Kettles with cover
Capacity 5½ qts. : : : \$1.16
7½ qts. : : : 1.58

Preserve Kettles
seamless, lined and deep
Capacity 6 qts. : : : \$.76
7½ qts. : : : .91

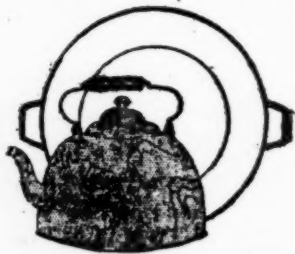
Convex Saucepan
enamel cover—seamless
Capacity 4 qts. : : : \$1.16
5½ qts. : : : 1.48

Tea Kettles
Capacity 6 qts. : : : \$1.80
6½ qts. : : : 2.00

Dish Pans—round
Capacity 9 qts. : : : \$1.08

Lipped Saucepan—seamless
Capacity 2½ qts. : : : \$.64

Water Pitchers
seamless, hollow steel handles, convex shape
Capacity 1½ qts. : : : \$.80
1¾ qts. : : : .92
Capacity 1½ qts. : : : \$1.00
2½ qts. : : : 1.04



Capacity 11 qts. : : : \$1.38

Capacity 3½ qts. : : : \$.80

10% Discount on Electric Goods

Electric Flat-irons, Percolators, Grills,
Electric Toasters and Chafing Dishes.

10% Discount on All Aluminum Wares—15% Discount on
White Enamel Wares—20% Discount on Fancy Baskets

Household Utility Department, Entire Third Floor

Burley & Company

HOUSEHOLD UTILITIES
Seven North Wabash Avenue

ESTABLISHED 1838

Typical Advertisement of Enameled Ware by High Class Housefurnishings Store in Chicago.

wants. But occasionally when an article is not in stock, I always suggest another piece which I think appropriate, and thus I save many sales which otherwise would be lost.

If some customers are inclined to buy the cheaper qualities of ware because of the price and ask for my counsel, I state that if I were selecting for the home I would buy the better grade of ware. Although it costs more when purchased, it is the most economical in the end, due to the lasting wearing quality. Very often the purchaser selects the better grade with guaranteed satisfaction. However, in the sales to boarding houses, I generally find that the cheaper ware appeals more, because there they need such a variety.

I always endeavor to be interested not only in my sales, but also in the purchaser's welfare, and enjoy assisting the young bride in selecting the kitchen layout, which may be very elaborate. I find that mailing personal invitations to newlyweds to visit your department and other divisions of the store makes many extra sales and regular customers.

I certainly appreciate the "special piece" enameled ware sales, for at this time I put forth my best efforts to expand my sales and future trade. I also like to hand out special invitation cards, welcoming all my customers to my counters for serviceable goods at economical prices. In this way their good will is more for the store.

Good Ideas for Window Display

*Practical Lessons from Exhibits in AMERICAN ARTISAN AND HARDWARE RECORD Window Display Competition.
How to Get More Passers-By to Come into Your Store.*

HOUSEHOLD SPECIALTIES MAKE GAINFUL WINDOW DISPLAY.

The power of properly harmonized light and color as a setting in which to present goods for sale is much greater than is generally believed.

There is only one method by which we receive impressions. We do not inherit ideas. We gain them only through the senses. Our impressions are the result of the perception of form, color, and density.

Because of the constant inflow of impressions from all points of our surroundings, we have not the time to study objects beyond the first impression which they

make upon us—unless we are specially interested in them.

It is of prime importance, therefore, in a window display to convey by means of color contrast, arrangement, and lighting, as persuasive a first impression as the nature of the goods and the cleverness of the window trimmer will permit.

In the majority of cases the passer-by must be quickly impressed.

It is essential to arrest his notice and hold his attention long enough to permit him to receive the full force of the impression from the commodities on exhibit.



Window Display of Electric and Household Specialties, Arranged by George C. Franklin for Smith Hardware Company, Oswego, New York.

Therefore, the utmost use should be made of the accessories which heighten the appeal of the goods.

George C. Franklin, who arranged the window display shown in the accompanying illustration for the Smith Hardware Company, Oewego, New York, gives the closest thought to the setting in which the goods are shown. He appreciates the pulling power of color and lighting effects.

Briefly, he describes this window display as follows:

"These items of electric and household specialties were displayed during 'Style Week.' They were shown on a back ground of purple and white crepe paper, the white laid to form the border, while through the center the purple and white alternated.

"The narrow purple ribbons were crossed on the back panels and the tops of the standards were white with purple centers. On these were displayed electric percolators, grills, toasters, carving sets, food choppers, thermos bottles and aluminumware.

"Great care was exercised in placing each item in such a manner that it would make a strong appeal to the possible purchaser, and the results as shown by the actual sales, demonstrated the success of the effort."

Charles P. Catlin Joins Remington Cutlery Division as Sales Promoter.

Charles P. Catlin, formerly Jobbing Sales Manager of the Oneida Community, Limited, has just severed his connection with that company to become associated with the Remington Arms Company, Incorporated, New York, as Manager of Sales Promotion in the Cutlery Division. Mr. Catlin will work in connection and cooperation with A. H. Willey, Sales Manager Cutlery Division. The Remington Arms Company make this announcement with a great deal of satisfaction not only because of Mr. Catlin's wide experience in the hardware business but also by reason of the extremely cordial and friendly relations which Mr. Catlin enjoys among the wholesale and retail trade in every section of the country.

Mr. Catlin has had thirty-nine years' experience in the hardware business. He spent seven years in learning the business with Hibbard, Spencer, Bartlett & Company, Chicago. He traveled and sold hardware and cutlery to the retail trade in Illinois and Indiana for four years. Following this he became a special cutlery salesman for two years. During the next nine years he held a position as cutlery buyer and sales manager for the Van Camp Hardware & Iron Company, Indianapolis, and Marshall Wells Compny, Duluth, spending four and a half years with each concern.

In 1912 Mr. Catlin became associated with the Oneida Community, Ltd. He was manager of their St. Louis office for four years and during the past five years has been Jobbing Sales Manager in the Silverware Department of Sales Promotion Merchandising.

A Number of Trade-Marks Are Registered in Patent Office.

United States Patent Office registration has been granted for the trade-marks depicted in the accompanying illustration. The numbers of the trade-mark certificates are given in connection with the list printed

herewith together with the names of the companies and the character of the goods for which each trade-mark is to be used.

104,173. Paint pigments, and particularly zinc oxid, leaded zinc oxid, ocher, and lithopone. The New Jer-



Thermo-Seal
143,851.

BOND
142,762.

CONQUEROR
143,843.



sey Zinc Company, New York, New York. Filed May 31, 1917.

143,843. Shovels and spades. Shapleigh Hardware Company, St. Louis, Missouri. Filed February 19, 1921.

143,851. Sheet metal casings for coal, wood and gas furnaces. Homer Furnace Company, Coldwater, Michigan. Filed January 21, 1921.

142,762. Wrenches. The Niagara Manufacturing Company, Lucas, Ohio. Filed January 25, 1921.

141,711. Black sheets of rolled soft steel. American Sheet and Tin Plate Company, Pittsburgh, Pennsylvania. Filed December 31, 1920.

Wants to Know Who Manufactures the Holt Conductor Head.

TO AMERICAN ARTISAN AND HARDWARE RECORD:

We would like to know who manufactures the Holt conductor head.

STAHLER AND JOHNSON.

—, Illinois, July 11, 1921.

Norman E. Horn Is New Advertising Manager of Winchester Repeating Arms Co.

Norman E. Horn, Superintendent of Sales Service, is now advertising manager of the Winchester Repeating Arms Company as well.

Under Mr. Horn the Sales Service and Advertising Departments will be combined. The new advertising manager joined the Winchester forces in 1919 and soon after his connection organized the Sales Service Department and has been in charge of it since. Before joining the Winchester Repeating Arms Company Mr. Horn was on the staff of Walter B. Snow, the well-known advertising agency of Boston, for five years, specializing in engineering equipment and hardware and later was manager of a merchandising research bureau in New York City.

Wants Repairs for Mercury Lawn Mower.

TO AMERICAN ARTISAN AND HARDWARE RECORD:

Where can I buy repairs for the "Mercury" lawn mower?

A. F. SCHEMMER.

Rock Valley, Iowa, July 25, 1921.

Old Time Point of View Condemned by Advertising Men's Conference.

The Associated Retail Advertisers' Conference has made the following recommendations pertaining to advertising and selling policies:

1. That merchants entertain a conception of their stores not primarily and solely as money making business, but as semi-public institutions with distinct and increasingly definite duties—a recognition that Service must go before profit, for good profit inevitably and only follows upon good and economical Service.

2. That merchants substitute modern, scientific analysis and methods of management for the old, wasteful, hit-and-miss, rule-of-thumb, good-enough-for-father, custom-of-the-trade point of view.

3. That selection, training, management and compensation of store employes should look to the happiness and development of the latent power of each and every individual.

4. That speed and economy in distribution be the goal of every merchant and that logical analysis of potential demand with the adoption of modern buying and selling methods to meet these trends follow as their natural corollary.

5. That honesty in goods be put above price; that service and satisfaction be put first, and price second; that retailers devote their efforts to exploiting the goods rather than their cost.

6. That the reconstruction of advertising and sales policies be undertaken at once to build public confidence by the gradual elimination of comparative prices.

Peck, Stow & Wilcox Company Increase Capital to Four Millions.

The Peck, Stow & Wilcox Company, Southington, Connecticut, manufacturers of Pexto tools, employing about 700 hands, have resumed operations after a shut-down of two weeks for inventory. A stockholders' meeting was held July 27 to elect directors and to vote upon the acceptance of the amendment to the company's charter authorizing the company to increase its capital from \$1,500,000 to \$4,000,000.

Various Hardware Trade-Marks Are Granted Registration.

Under the following number, United States Patent Office registration has been procured for the trade-marks shown herewith in the accompanying illustration. The numbers of the trade-marks certificates are given



in connection with the list printed herewith together with the names of the companies and the character of the goods for which each trade-mark is to be used.

142,855. Rolled iron and steel sheets and plates, tin and terne plates. American Sheet and Tin Plate

Company, Pittsburgh, Pennsylvania. Filed December 13, 1920.

145,698. Flue linings. Malleable Iron Range Company, Beaver Dam, Wisconsin. Filed April 4, 1921.

145,142. Woven wire screen cloth. Wickwire Spencer Steel Corporation, Worcester, Massachusetts. Filed March 23, 1921.

143,261. Lawn mowers. Pontiac Lawn Mower Company, Detroit, Michigan. Filed June 14, 1920.

Registers Saw Trade-Mark in Patent Office.

Under classification number 23, namely, cutlery, machinery, and tools, and parts thereof, the American Saw and Manufacturing Company, Springfield, Massachusetts, have procured United States Patent Office registration for the trade-mark reproduced herewith. The particular description of goods to which it applies is saws. The Company claims use of this trade-mark since on or about April 30, 1915, and application for registration was filed August 2, 1919.

LENOX
144,095.

Bull Dog Skid Chain Fastener Prevents Chain from Being Loosened.

H. A. Samsky, of the sheet metal and warm air heating firm of Samsky Brothers, Flagstaff, Arizona, has formed a copartnership under the name of the Western Manufacturing Company, for the purpose of manufacturing and marketing a device for the fastening of automobile skid chains.

The device, which is known as the Bull Dog Skid Chain Fastener, is said to prevent the chains from working loose. The manufacturers also state that it can be attached or removed with gloved hands in a few seconds, even when both rear wheels are deep in the mud, without digging or jacking up.

Numerous tests under the most difficult conditions have been conducted—all proving, it is said, that the Bull Dog Fastener will do all that is claimed for it.

A. L. Peak, a Flagstaff taxi owner, is the inventor. H. A. Samsky will supervise its manufacture, and H. R. Paulstone will have charge of the sales. These three compose the Western Manufacturing Company.

Says AMERICAN ARTISAN Is Necessary for His Business.

TO AMERICAN ARTISAN AND HARDWARE RECORD:

Enclosed please find money order for \$2.00 to renew my subscription

I find many valuable data in every issue of the AMERICAN ARTISAN and consider it necessary in my business.

Yours truly,

C. H. WAGNER.

—, Iowa, July 25, 1921.

A belief that you are selling the best goods that were ever made for the purpose intended, at the least money.

Hinges, Butts, Door Hangers and Tracks Reduced Ten Per Cent.

The McKinney Manufacturing Company, Pittsburgh, and the Griffin Manufacturing Company, Erie, Pennsylvania, announce a reduction of approximately 10 per cent on their full lines of hinges, butts, hangers, tracks and on all other goods used in house construction.

Gets Trade-Mark Registered for Screw Extractors.

United States Patent Office registration has been granted to The Cleveland Twist Drill Company, Cleveland, Ohio, for the trade-mark shown in the accompanying illustration. The particular description of goods to which it applies is screw extractors. Application for registration was filed December 30, 1920, and the company claims use of this trade-mark since October 15, 1916.

Trade-Mark Is Registered for Reamers of All Kinds.

The Cleveland Twist Drill Company, Cleveland, Twist Drill Company, Cleveland, Ohio, has procured United States Patent Office registration under classification number 23, namely, cutlery, machinery and tools, and parts therefore, for the trade-mark depicted herewith. The particular description of goods to which it applies is reamers of all kinds. Application for registration was filed December 30, 1920.

No matter how hot your competition may be, there are always plenty of lines that are not well sold, lines that you can sell better than anybody else sells them.

Trade Opportunities in Foreign Lands.

The Bureau of Foreign and Domestic Commerce through its Special Agents, Consular Officers and Commercial Attachés, is receiving information of opportunities to sell hardware and kindred lines in several foreign countries. Names and locations will be supplied on request to the Bureau in Washington or its District Offices. Such requests should be made on separate sheets for each opportunity, stating the number as given herewith:

35210.—A firm of importers in India desires to enter into business relations with exporters of hardware and metals, such as copper and brass sheets. No reference offered.

35225.—An agricultural cooperative society in Czechoslovakia desires to receive from manufacturers catalogues and prices lists of small agricultural implements and specialties for use of gardeners, bee culturists, and poultry raisers.

35229.—A commission agent in India desires to be placed in touch with exporters of hardware. Reference.

Coming Conventions.

Michigan Sheet Metal Contractors' Association Annual Outing, Grand Rapids, Michigan, July 29 and 30, 1921. Frank E. Ederle, Secretary, 1121 Franklin street, S. E., Grand Rapids, Michigan.

The Western Retail Implement, Vehicle and Hardware Association, Kansas City, Missouri, January 17, 18, 19, 1922.

Exhibition at Convention Hall in charge of Louis W. Shouse. Headquarters, Coates House. Sessions in Century Theatre. H. J. Hodge, Secretary, Abilene, Kansas.

Pacific Northwest Hardware and Implement Association Convention, Davenport Hotel, Spokane, Washington, January 17, 18, 19, 20, 1922. E. E. Lucas, Secretary, Hutton Building, Spokane, Washington.

Oregon Retail Hardware and Implement Dealers' Association Convention, Imperial Hotel, Portland, January 24, 25, 26, 27, 1922. E. E. Lucas, Secretary, Hutton Building, Spokane, Washington.

Kentucky Hardware and Implement Association, Jefferson County Armory, Louisville, Kentucky, January 24, 25, 26, and 27, 1922. J. M. Stone, Secretary-Treasurer, Sturgis, Kentucky.

Indiana Retail Hardware Association, Convention and Exhibition, Athenaeum Hall, Indianapolis, January 24, 25, 26, 27, 1922. G. F. Sheely, Secretary, Argos.

West Virginia Hardware Association Convention and Exhibition, Wheeling, January 31, February 1, 2, 1922. James B. Carson, Secretary, 1001 Schwind Building, Dayton, Ohio.

Nebraska Retail Hardware Association Convention, Lincoln, February 7, 8, 9, 10, 1922. George D. Dietz, Secretary, 414-417 Little Building, Lincoln, Nebraska.

Michigan Retail Hardware Association Convention and Exhibit, Grand Rapids, Michigan, February 7, 8, 9 and 10, 1922. Karl S. Judson, Exhibit Manager, 248 Morris Avenue, Grand Rapids, Michigan. A. J. Scott, Secretary, Marine City, Michigan.

Wisconsin Retail Hardware Association Convention and Exhibition, Milwaukee, February 8, 9, 10, 1922. P. J. Jacobs, Secretary, Stevens Point, Wisconsin.

Pennsylvania and Atlantic Seaboard Hardware Association, Inc., Convention and Exhibition, Philadelphia Commercial Museum, Philadelphia, February 13, 14, 15, 16, 17, 1922. Sharon E. Jones, Secretary, 1314 Fulton Building, Pittsburgh.

Illinois Retail Hardware Association Convention, Hotel Sherman, Chicago, February 14, 15, 16, 1922. Leon D. Nish, Secretary, Elgin, Illinois.

Minnesota Retail Hardware Association Convention, St. Paul, February 14, 15, 16, 17, 1922. H. O. Roberts, Secretary, 1030 Metropolitan Life Building, Minneapolis, Minnesota.

Ohio Hardware Association Convention and Exhibition, Columbus, February 14, 15, 16, 17, 1922. Headquarters, Deshler Hotel. Exhibition, Memorial Hall. James B. Carson, Secretary, 1001 Schwind Building, Dayton, Ohio.

Missouri Retail Hardware Association Convention and Exhibition, St. Louis, Planters Hotel, February 21, 22, 23, 1922. F. X. Becherer, Secretary, 5106 North Broadway, St. Louis, Missouri.

New England Hardware Dealers' Association Convention and Exhibition, Paul Revere Hall, Mechanics' Building, Boston, Massachusetts, February 21, 22, 23, 1922. George A. Fiel, Secretary, 10 High Street, Boston.

New York State Retail Hardware Association Convention and Exhibition, Rochester, February 21, 22, 23, 24, 1922. Exhibition at Exposition Park. Headquarters and sessions at Powers Hotel. J. B. Foley, Secretary, 412-413 City Bank Building, Syracuse, New York.

Hardware Association of the Carolinas Convention, Winston-Salem, North Carolina, May 9, 10, 11, 1922. T. W. Dixon, Secretary-Treasurer, Charlotte, North Carolina.

Retail Hardware Doings.

Illinois.

Mr. Rant has opened up a hardware store at Sciota. He will carry in stock general hardware, farm implements and machines, also pumps and mills.

Vernon Cameron has purchased the hardware store of A. D. Forsythe at Viola.

Iowa.

The Cash Hardware store at Allison has been sold by Frank Burroughs to James Hart of Vinton.

Harry Albright has traded his hardware stock at Keosauqua to a Mr. Bowers for a farm.

Michigan.

The W. H. Anderson Tool and Supply Company of Detroit has leased the property at 303 Bridge Street, North West, Grand Rapids, and will open an office and warehouse, carrying a full line of contractors' tools and equipments in stock.

The Aber-Morse Hardware Company has leased a new building in Berrien Springs and will open a hardware store there August 1st, with a complete line of general hardware, including stoves and builders' hardware.

Minnesota.

The Florence Hardware store at Florence was destroyed by fire.

Missouri.

The J. O. Pauley Hardware Store of Princeton has changed its name to Pauley Brothers Hardware Store, as J. O. sold a half interest to his brother, Fred, of Powersville.

Advertising Help and Comment

Send Us Copies of Your Advertisements. Let Us Help You Get Bigger Results by Advice and Suggestions. The Service Is Free. Don't Hesitate to Take Advantage of It.

Most of the Christmas stories which appear in the popular magazines are written in July and August—a few of them in May and June.

Some authors contend that the imagination is more easily stimulated to make pictures of snow-clad trees and hills and frosted windows

which deals with Christmas gifts.

Just as the authors of Christmas romances write their most vivid tales when the mercury is throbbing at the top of the thermometer so it is not out of reason for the enterprising retailer to give thought now to some of the general plans of his store for Christmas business.

It will be noticed in this copy that articles featured are adequately illustrated and that they are presented to the consideration of prospective customers with sufficient text to explain their desirability as Christmas gifts.

In practically every instance, range of prices is given. This creates confidence.

No matter what may be said to the contrary, people are suspicious of advertisers who withhold price quotations.

They feel, more or less consciously, that they are to be objects upon which the arts of persuasion and, perhaps, somewhat of chicanery are to be exercised when they go into the store in search of articles for which no prices are given in an advertisement.

* * *

It is always well to emphasize quality, and especially in connection with builders' hardware for the lasting quality is the real index of value, and the man who is building a home should always have this point in mind when buying the locks, hinges and other items that are to form a part of his residence.



Kiddie Kars only \$1.00 Friday
8 and 10-qt. Preserving Kettles, \$1.00
 white enamel only

Give your wife or mother an electric servant for Christmas. To make easier the drudgery of housework. Shallow thanks are given for useless things. Sincere gratitude is expressed for useful things that bear the brunt of service. These electric appliances are not the kind that clutter the home and turn it into a warehouse. They are beautiful and serviceable. They endure. Here you will find every Home Need that every home needs. Gifts that make a Merry Christmas last the whole year through.

Clothes Washer, \$115.00 to \$200.00
 Mangles, \$145.00 to \$275.00
 Air Way Vacuum Cleaners, \$57.50
 Sweeper Vac Cleaners, \$57.50
 Grills, \$10.50 to \$21.00
 Toasters, \$7.50 to \$9.50
 Coffee Percolators \$18.00 to \$21.00
 Coffee Urns, \$23.00 to \$55.00
 Waffle Irons, \$16.00 to \$21.00
 Curling Irons, \$7.25 to \$8.00
 Electric Irons, \$6.50 to \$10.00
 Heating Pads, \$15.50
 Sewing Machines, \$35.00 to \$125.00
 Sewing Machine Motors \$21.50
 Heaters for Bath or Bedroom, \$9.00 to \$15.00
 Tea Kettles, \$19.50
 Chaffin Dishies, \$16.00

Useful Gifts for Father and Brother

Gillette Razors, \$8.50 to \$14.95
 Pocket Knives, 75c to \$7.50
 Flash Lights, \$1.25 to \$4.50
 Sleds, \$2.25 to \$8.50
 Roller Skates, \$2.95
 Ice-Hockey Skates with Shoes, \$14.50 to \$18.50
 Wagons, \$6.30 to \$10.50
 Tools, Planes, Saws, Hammers, etc.
 Vacuum Bottles, \$2.75 to \$5.00
 Vacuum Lunch Kits, \$2.75 to \$5.00
 Ingersoll Watches, \$2.50 to \$15.00

Useful Gifts for Mother and Daughter

Table Silverware Cutlery, Carving Sets, \$4.50 to \$10.00
 Coffee Percolators, \$2.75 to \$15.00
 Aluminum Ware pieces or in sets, \$2.50 to \$6.50
 Tea Kettles, \$2.50 to \$6.50
 Tea Pots, \$2.25 to \$4.50
 Coffee Pots, \$2.50 to \$5.00
 Double Boilers, \$1.75 to \$4.50
 Food Choppers, \$2.25 to \$4.50
 Shears, 75c to \$2.00
 Manicure Sets, \$4.50 to \$7.50
 Roasters, \$3.50 to \$7.50
 Bread Boxes, \$2.25 to \$4.50
 Camerolens, \$2.50 to \$7.50
 Kitchen Tool Set, \$1.95

Select your gifts now. We'll hold them till Christmas. Don't join the mad scramble in last minute buying. Select your gifts now while our stock is at its fullest and best. You'll want these goods for the family and all the friends on your Xmas list. Call now, make your selection, and with a small deposit, we'll set your goods aside.

Wilke Hardware & Electric Co.

The Home of the Bluebird Electric Washer. Distributor for the Air-Way Electric Cleaner
 Edgewater 1296 8801 LORAIN AVE. Lorain 1244L
 47 EUCLID ARCADE—Main 1830

when they themselves are exuding oily perspiration from every sweat gland in their bodies.

Many of us look backward with yearning retrospect to the chilly blasts of winter when we are sweltering under a pitiless June sun.

It is, therefore, not quite as inappropriate as it might seem at first glance to reproduce at this season of the year an advertisement

If you are thoroughly alert to every help for the broadening and upbuilding of your sales, you keep a file of effective advertising copy.

The advertisement shown in the accompanying illustration deserves a place in your file.

It was published by the Wilke Hardware & Electric Company, in the *Cleveland Press*, Cleveland, Ohio.

The Store of Quality

Select Your Builders Hardware With Care

We carry a very complete line in the latest, most approved designs.

Also a full line of guaranteed Carpenters' Tools.

Full line Devco Paints.

Klostermeier Bros.

Hardware Co.

Phone 190. 726 Commercial

The advertisement of Klostermeier Brothers Hardware Company, which occupied a space, 3 columns wide and 5 inches deep, in the *Globe*, Atcheson, Kansas, is therefore a good example of quality advertising, but it would have been more likely to bring specific returns if one or more items had been shown, described and priced.

Huffaker of Omaha Versus Nesbit of Omaha: Hot Fight About Warm Air.

*Both Good Men and Both Have Interests of
Warm Air Heating Business Close at Heart.*

In recent issues of AMERICAN ARTISAN AND HARDWARE RECORD letters have been published from men who are vitally interested in the upbuilding of the warm air heating industry.

All of these letters pertain to the matter of a "Code of Installation," which it is proposed to have enacted into law. Some want this code to require the examination and licensing of installers, while others oppose this as too stringent.

John H. Hussie, Omaha, Nebraska, Secretary of the Western Warm Air Furnace & Supply Association, started the discussion on page 25 in our June 11th issue.

Edward Norris, President of The Utica Heater Company, Utica, New York, answered Mr. Hussie, on page 22 of our July 2nd issue.

F. L. Nesbit, President of the Standard Furnace & Supply Company, Omaha, Nebraska, and former President of the Western Warm Air Furnace, Supply Association, had his say on page 27 and 28 of our July 9th issue.

Mr. Hussie answered Mr. Norris on page 24 and 25 of our July 16th issue.

The genial Jesse M. McHenry, who is a friend of all of us, tried to "pour oil on the troubled waters," on page 25 and 26 of our July 23rd issue.

Now comes H. B. Huffaker, also of Omaha, and General Manager of the Western Branch of the Ideal Furnace Company, Detroit, Michigan, with some "pertinent" questions for Nesbit to answer.

Herewith follows Mr. Huffaker's letter:

TO AMERICAN ARTISAN & HARDWARE RECORD:

I have just finished reading the caustic comment of my friend, Mr. F. L. Nesbit, on the need of laws governing the installation of warm air heating plants, together with his sarcastic reference to "pipeless heating."

It may be presumptuous for me to take issue with so good an authority on heating and ventilating, but when any particular "clique" or association combine to get laws enacted that I do not believe will prove beneficial to the General Public, as one of the "G. P.," I desire to protest.

As to the controversy between the National Warm Air Heating and Ventilating Association, and the Western Warm Air Furnace & Supply Association, I am not a member of either, and have no personal interest in the matter; however, I do not believe that either should attempt to dictate as to the way my house be heated or whom I should employ. I quite agree with Mr. Nesbit, that there is a great need of better heating knowledge by the installers of furnaces, but contend that this deficiency is much more apparent amongst installers of "pipe" systems than many other line; in fact, it is this very inefficiency that is turning the tide rapidly in favor of "pipeless" plants, where the need of technical knowledge is not so important.

That the one-register plants will not heat all types of houses by the same method of installation, should be frankly admitted if the vendor is desirous of selling real efficiency; is this not also true of the "pipe" systems? Would Mr. Nesbit plan to heat all six room houses alike, regardless of their size or arrangement? I know he is too good a heating man to do that, but he seems to feel that there is no possibility of variation in the installation of one-register systems. He makes satirical comment on the engineering service necessary to the proper location and installation of one-register systems, which is perhaps the reason he is still unconvinced of the merit in them. He refuses to accept the testimony of thousands of actual users of one-register systems, as to the comfort and economy they enjoy, and seems to feel that they are presumptuous in making the claim.

The wonderful growth of one-register heating in the past few years, should convince the most skeptical of the merit in this system, especially when it is considered that this growth has been opposed by practically every old line builder of furnaces and those posing as "the anointed" in heating and ventilating knowledge. Mr. Nesbit is to be congratulated on his candor, for it has been known for some time that the resolution spoken of in his article as a basis for regulating the heating business by law, is simply a last desperate stand to kill off the so-called "pipeless" business; his is the first frank statement I have seen that will disclose the interest behind this agitation, and that will be benefitted by its enactment as a law. It is for the public weal to have a law governing the knowledge that must enter into the installation of furnaces, why not other lines of endeavor; make the carpenter graduate in architecture, the shoemaker in the tanning of hides and chiropody; all will admit that a knowledge along these lines will help each to a better understanding of his business.

The public demand for one-register plants has forced nearly all old line manufacturers to build a plant to fill the need. Even Mr. Nesbit's company sell one or two types, though he will naively tell you they are somewhat better than base-burners, if you ask him. The writer has been engaged in the retailing of one-register heating plants exclusively for the past four years, up to February first, and in that length of time has planned and installed around 700 plants. Four hundred of these were installed during the last two seasons, and on a positive contract to remove the plant and return the money paid if not satisfactory; we were asked to remove only one plant in this number. Can any of the "pipe" systems show a better record, even though planned by the Ex-President of the Western Warm Air Furnace & Supply Association?

The manufacturing company with whom I am now connected, make "pipe" systems; "three ways," and one-register plants, and I have no reason for urging

one system more than another, except a desire to build up an enduring business on the solid foundation of satisfied customers. I am "ferninst" any law that will compel the small dealers in the little towns to go to the expense of a trip to the governing board, and of course the contingent fee, simply in order to let some "clique" tell him what kind of furnace he shall sell; or that would force the consumer to give his business to some dealer located outside of his community, which would necessarily increase his cost and *might* not give him any better installation. If the consumer has enough confidence in his preferred dealer to permit him to handle his heating job, he should be allowed to do so; and if the dealer is incompetent or uncertain of his ability, he can always draw on the experience of the factory engineers without cost, and I believe most factories will stand behind the success of any installation they are permitted to plan.

Mr. Nesbit's sneering reference to "the trade of barbers, druggists, general contractors, furniture stores, and a class of customers who know nothing of heating" (the latter may be presumed to include all hardware dealers and tinnerns who have had no special training in heating and ventilating), will only be appreciated by those having an axe to grind. I have covered some eight or ten states in the past twenty years, and do not recall a single instance of finding either barbers or druggists in the furnace business, though I see no good reason why they should not be if they are willing to take the chance of furnishing the comfort and economy a critical buying public will demand. The furniture and hardware dealers are the logical outlet for furnaces in the smaller towns, and should be allowed to retrieve business that has been lost on stoves and base-burners, in this way, if their customers are satisfied.

In conclusion, my suggestion to the jobber or manufacturer who has a real interest in his customer's success and in the general welfare of the people who buy their plants, is to get behind the dealer with *real help* in planning good installations, and not try to handicap him in every way possible with a labyrinth of red tape that would be unjust to begin with, and unobserved by 90 per cent of the localities within six months, should such regulations be passed.

Yours very truly,

H. B. HUFFAKER.

Omaha, Nebraska, July 25, 1921.

Smoke Stacks Should Not Be Made of Tin.

Through an error in the proofreading room, the fifth paragraph in the second column of Mr. McHenry's letter, published on page 25 of our July 23rd issue, was made to read as follows:

"Another Section reads in part as follows: All smoke stacks shall be made of 'I C' or 'I X' tin not lighter than 24 gauge, and shall have clearance from any combustible material at all points of not less than 16 inches."

Mr. McHenry's letter reads as follows:

"Another Section reads in part as follows: 'All smoke stacks shall be made of either galvanized or black iron, etc.'"

Becomes Sales Manager for the May-Fiebeger Furnace Company.

The announcement comes from Newark, Ohio, that J. B. Wilson, formerly with the Favorite Stove & Range Company of Piqua, Ohio, and the Richmond Stove Company of Richmond, Virginia, has accepted the position of Sales Manager for The May-Fiebeger Furnace Company of Newark, Ohio.

The May-Fiebeger Furnace Company has recently undergone reorganization and is throwing new impetus into its sales and manufacturing. Mr. Wilson will have charge of the Sales Department.

The May-Fiebeger Furnace Company is marketing an old established line of warm air heaters, the qualities of which are known to most dealers and manufacturers.

An important line of their manufacture is the Thompson Hose Clamp which is an easily handled, well-made clamp of particular merit.

Mr. Wilson hopes to put both products into the lead in their respective fields. He took charge at The May-Fiebeger Furnace Company's office the first of July.

New Catalogue of Furnace Fittings Contains Much Valuable Information.

The new catalogue which has just been published by the Manny Heating Supply Company, 131 West Lake Street, Chicago, Illinois, contains in addition to a well assorted line of warm air furnace supplies and fittings, a great deal of valuable information for the installer and is therefore well worth his careful study.

For example, there is a page devoted to method for determining the size of pipe necessary to heat a given space; then there are suggestions for installations of single, duplex and three-register systems of warm air heating, as well as illustrations and descriptions of well constructed warm air heaters sold by the Company. Altogether, this 68-page book will be found useful by the installer who wants to keep posted on the latest and best in warm air heating.

Wants Cheap Pipeless Furnace to Meet Mail Order House Competition.

TO AMERICAN ARTISAN AND HARDWARE RECORD:

Can you advise us where we may buy extremely cheap pipeless furnaces which will compare favorably with those put out by the Kalamazoo people; also to compete with furnaces sold by Montgomery Ward & Company and Sears, Roebuck & Company and others.

Very truly yours,

CARHART HARDWARE COMPANY.

Wayne, Nebraska, July 25, 1921.

He Thinks a Lot of AMERICAN ARTISAN.

TO AMERICAN ARTISAN AND HARDWARE RECORD:

AMERICAN ARTISAN surely is a good magazine for the trade, and I think a lot of it.

Yours truly,

ELMER E. HAAG.

—, Ohio, July 12, 1921.

Shows How Manufacturer Works Together with Dealer.

The word "cooperation" is used so much nowadays that the edge of its meaning has become blunted.

It needs to be sharpened again into full significance.

Cooperation is a compound of two Latin words and means *working together*. Naturally, that implies some degree of common interest. Persons work together when they want to achieve the same result.

The warm air furnace manufacturer who cooperates—who *works together*—with his dealers does so because he has an interest in common with them.

It does not require an elaborate analysis of the relation between producer and distributor to understand why and how the one is dependent upon the other.

Plainly, the more the dealer sells of the manufacturer's product the more the manufacturer profits.

On the other hand, the more the manufacturer helps the dealer sell the product the more the dealer profits.

Admittedly, one of the best ways to quicken sales is through the right sort of advertising.

The properly composed advertisement is equivalent to a staff of salesmen.

Consequently, one of the best ways to help the dealer is to supply him with effective advertising copy—advertisements which have stood the test of experience.

This is one of the many forms in which the Meyer Furnace Company, Peoria, Illinois, assists its dealers.

Herewith are reproduced four advertisements designed for the use of the dealers who sell the "Weir" warm air furnace manufactured by the Meyer Furnace Company.

As may be noticed, there is ample space at the bottom of the advertisements for inserting the dealer's name and address.

The first of the advertisements shown has an exceptionally strong selling argument. It completely answers one of the common objections to warm air furnaces, namely, leaking joints.

The records of the Meyer Furnace Company disclose the fact that this advertisement has been instrumental in increasing sales for dealers who follow it up with personal salesmanship—in other words, who work together with the manufacturer, who cooperates with the advertisement.

Saving coal, giving dependable warmth, cleanliness of operation, comfort and convenience are some of the advantages accentuated in other advertisements of this series.

There is no room for debate concerning the benefit to the dealer from using the helps of such advertising copy.

Compare these intensive advertisements with the old-fashioned copy consisting merely of the dealer's name and address with a notation that he sells furnaces, and you will perceive how really valuable is the cooperation of the manufacturer.

The difference is overwhelmingly in favor of the Meyer Furnace Company's copy.

By co-operation of this sort the dealer is given the advantage of the advertising specialist's knowledge, experience and money-making talent at no additional cost to himself.

Arc or Ox-Acetylene Welded Joints are Found in the WEIR

JOINTS welded by electricity or oxygen and acetylene gas actually fuse the two pieces of metal into one. Both of these up to date processes are used in the new factory in eliminating what has always been an objection to warm air furnaces—leaking joints.

The WEIR furnace is positively gas, dust and smoke tight and if this assurance is of the value to you, it has been to thousands of users.

The WEIR Extra-Heat Radiator Does Save Coal

IN the ordinary warm air furnace a very large per cent of the heat generated from burning fuel goes up the chimney simply because no arrangement has been made on the furnace to absorb the heat.

The illustration shows how the products of combustion leave the main furnace and travel thru the WEIR extra-heat drum which absorbs these heat units which ordinarily pass out the chimney and are wasted. The radiating surface of this auxiliary drum is as large as some furnaces. Thus it will be seen that the WEIR is in reality two furnaces in one and that this arrangement alone will save coal.

Many users of WEIR furnaces report that the WEIR consumes 25% to 35% less coal than other furnaces they have used, so it will take a very few years for a WEIR to pay for itself in fuel saved.

All the heat saved by the WEIR Radiator is your reward for your home.

The Principle of a Warm Air Furnace

BECAUSE so many people believe that a warm air furnace is an intricate and almost mysterious device, we feel that a word concerning basic principles of warm air heating will be of benefit.

A warm air furnace is simply a heating unit or stove set in a casing or sheet metal drum in the basement. Large pipes lead from the lower part of this drum to the rooms to be heated. Cold air, being heavier, descends the large cold air pipes, is then heated, and the cycle is repeated.

Winter Comfort Demands Heat—But You Want More Than That

WE must have heat in winter, and it is logical that we want comfort—and convenience as well. Neither is possible without a substantial trustworthy heating plant.

The higher grade of warm air furnace, carefully and scientifically made and installed does give you this solid comfort and convenience—without disquieting thoughts of fuel consumption and expense of repair bills.

Dependable satisfaction in heating simply means that in cold weather you can depend on your home being well heated and that your fuel bills will be less than those of your neighbors who may have an inferior heating apparatus.

It also means that such inconvenience as coal dust, dirt and ashes will be strictly confined to the room in the basement set aside for your furnace.

We hope to tell you, in a series of advertisements, just what a warm air furnace consists of and to explain to you exactly why the WEIR warm air furnace excels all others.

The WEIR is made by the Meyer Furnace Co., Peoria, Ill.

Practical Helps for Tinsmiths

No Two Jobs Are Exactly Alike. Therefore, the Sheet Metal Worker Has to Meet Each Difficulty as It Comes. Send Your Problems to Us. Let Our Experts Help You.

WORKING SKETCHES.

By O. W. Kothe, Principal St. Louis Technical Institute and Instructor in the David Rankin, Jr., School of Mechanical Trades, St. Louis, Missouri. Written especially for American Artisan and Hardware Record.

Shop working methods are always of interest. Each tradesman feels that his shop equipment and working methods are the best. This is but natural as he is best acquainted with his stock.

Still an infusion of ideas is never harmful, espe-

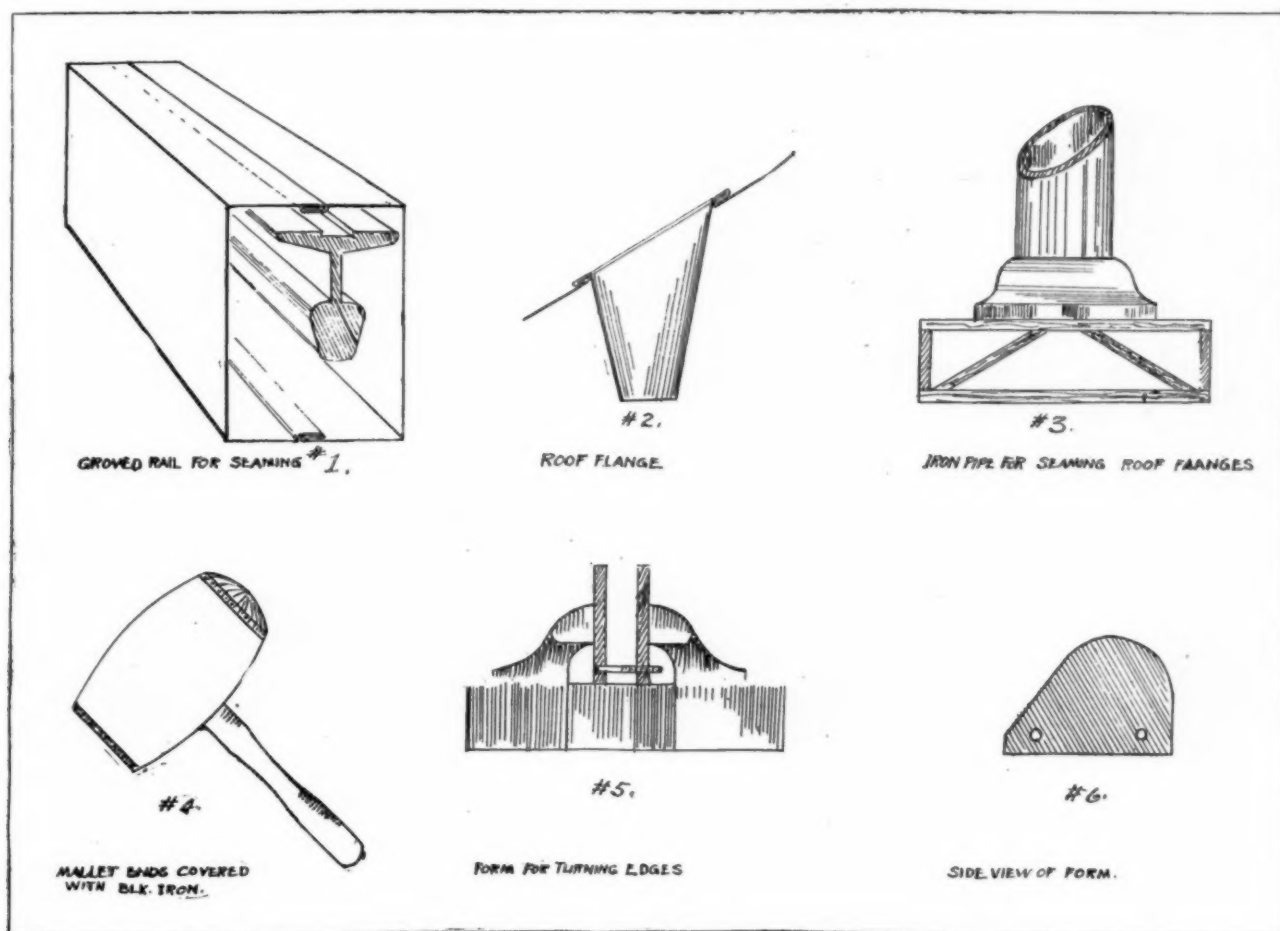
A fellow workman has overcome this by preparing a mallet as in sketch No. 4.

The one end is flat, and the other end is oval. These faces are covered with No. 20 black iron.

Indications point that after a year's service it is still as good as the day it was put on.

Some shops make up stock as roof jacks, etc. In No. 2 we have a sketch of roof jack.

The matter of double seaming the taper to the flanges causes considerable tact.



Working Sketches.

cially as a person always has the power to select that what he feels is of service to him.

In sketch No. 1 we have a railroad iron with a groove in it. A railroad iron is one of the most serviceable stakes to be had.

By having a groove worked in $\frac{3}{32}$ " to an $\frac{1}{8}$ " deep and about $\frac{7}{16}$ " to $\frac{3}{8}$ " wide, the workman is saved considerable time.

The seam is hammered down and grooved at the same time, and makes the outside of pipe smooth as shown in sketch.

Wood mallets are always a source of trouble and it is quite a job to always keep them in trim.

A piece of cast iron water pipe was selected having the cuppling on as in sketch No. 3, and with the hack-saw the pipe was cut off to suit the angle of roof.

This is filed smooth, and then the taper and flange are laid over. The taper can be made into a snug fit along the cut.

So, all that is needed is to hammer over the seam and solder it well on the surface side.

On special jobs as duct buckets, etc., it is farther difficult to turn the edges.

A form is made as in sketch No. 6, and fitted in a vise as at No. 5.

The metal is clamped between the forms and is then laid over.

Things of this kind can be multiplied in every piece of work, the only thing necessary is to think them out.

Ohio Auxiliary Comprises the Leaders of the Trade.

Practically all the leading firms doing business in the sheet metal trade of Ohio are represented in the newly organized Salesmen's and Jobbers' Auxiliary to the Master Sheet Metal Contractors' Association of Ohio, which was formed at the recent convention in Dayton.

Based upon an intelligent application of the fact of community of interests, the Ohio Auxiliary has for its chief purpose the promotion of the welfare of the sheet metal contractors of the State.

As the business of the sheet metal contractors grows,

at the first meeting and took an enthusiastic part in the formation of the organization:

Francis O. Carfer of J. M. & L. A. Osborn Company, Cleveland, Ohio.

Fred Foster of W. E. Lamneck Company, Columbus, Ohio.

A. P. Lamneck of W. E. Lamneck Company, Columbus, Ohio.

W. E. Lamneck of W. E. Lamneck Company, Columbus, Ohio.

G. V. Lamneck of W. E. Lamneck Company, Columbus, Ohio.

J. W. Brazier of J. W. Brazier Company, Columbus, Ohio.

A. E. Munkel of Munkel-Lamneck Company, Columbus, Ohio.

M. M. Gardner of J. M. & L. A. Osborn Company, Cleveland, Ohio.



Members of Newly Organized Salesmen's and Jobbers' Auxiliary to the Master Sheet Metal Contractors' Association of Ohio.

naturally that of the salesmen and jobbers increases in corresponding degree.

The members of the Auxiliary, therefore, have the strongest of all motives to work with and for the sheet metal contractors.

Moreover, they are reinforced by another powerful motive, namely, that of friendliness toward their customers.

No normal man can continue to do business with other men without acquiring friendships which, in turn, quicken business and tend to place it on a higher plane.

The Ohio Auxiliary starts out with vigorous friendships and a membership of uncommon excellence.

In addition to the list published on page 35 of the July 23rd issue of AMERICAN ARTISAN AND HARDWARE RECORD, the following charter members of the Jobbers' and Salesmen's Auxiliary to the Master Sheet Metal Contractors' Association of Ohio were present

D. A. Hossler of J. M. & L. A. Osborn Company, Cleveland.

A. W. Howe of J. M. & L. A. Osborn Company, Cleveland.

J. G. Henninger of J. M. & L. A. Osborn Company, Cleveland.

Harold Smith of J. M. & L. A. Osborn Company, Cleveland.

L. B. Ticknor of J. M. & L. A. Osborn Company, Cleveland.

M. W. Mowery of J. M. & L. A. Osborn Company, Cleveland.

Everything is gained and nothing lost by courtesy. Treat everyone with respect. Do not expect success without labor. Do not despair. If you follow these precepts, nothing can prevent you from gaining success.

Spend Less Time In Figuring Jobs and More Time in Selling Them.

Greenberg Makes It Plain That the Sheet Metal Contractor Who Uses His Brains Right Gets Ahead.

Written Especially for AMERICAN ARTISAN AND HARDWARE RECORD by J. C. Greenberg, Peoria, Illinois.

(Copyright, 1921, by J. C. Greenberg.)

Well, Mr. Sheet Metal Man, what is in your brain box these hot summer days? How are you thinking your business? What results are you getting?

Remember, I have said some time in the past that all human beings all agree on the one great fact that we all want to succeed. Our success is governed entirely by how we think along the line of our business. This is why I ask "How is your Brain Box?"

Our thoughts cause us to act. If we act right, we gain right public opinion. What kind of public opinion are we creating? The sheet metal man is not creating right public opinion because he does not think his business right. Let me prove it. If the shoe fits you, I hope it pinches hard enough to make you change your mode of thought and think business right. Let's go!!

I have observed this one fact very often, that the sheet metal man spends too much time buying goods and figuring jobs. If he should get all the jobs he figures on, there would not be men enough in his town to do the work. But he loses most of the jobs and his labor is lost. The reason is, that he spends so much time figuring that he must neglect his training along the financial and selling lines.

Please remember, Brother, that you must sell your art. Please remember that you must turn your knowledge into profit, or else you are a "gonner." You are too much of a mechanic and too little of a salesman. What is the use of being a 100 per cent sheet metal man, and far below zero in finance and selling. You must know these sides of your business or be in trouble all the time. And this is the reason why most of us are in trouble instead of being in business. Wake up, and get a hump on yourself and become a better financier and salesman.

To be a financier, you must first realize that the banks are in business for you. It is the bank that furnishes the money to transact your business, not the jobber or manufacturer. What right have you as a business man to dare presume that your jobber or man-

ufacturer should give you long terms and carry you as long as you please. Do you suppose that they are in business to let you dictate the policy of your business? Do you suppose that the jobber has a mint where he stamps out all the money with which to pay his bills?

Please remember that the jobber and manufacturer must borrow money at the bank, and you long term sheet metal buyers are paying the fiddler? Borrow your own money and discount your bills, and you will

make enough on your discounts to show a profit. Speak to your banker. He will put you wise to this borrowing method, and you will make your jobber and manufacturer happy. He has a right to be happy, as well as you have.

The one great trouble is that the sheet metal man does work for any Tom, Dick and Harry, whether he has the price of the job or not. If you do a job, and the customer can pay, all is well. But if he can not pay, you suffer. The greatest failures in our line had the most unpaid accounts. Beware of these sorts of customers. Get that kind of contract which has all the "con" taken out of it.

In other words, don't be too anxious to land a job unless you know absolutely when and where the money

Many Sheet Metal Contractors are in trouble, instead of in business, says Greenberg, because they are 100 per cent mechanics and less than zero salesmen and executives.

Make sure that your prospect is able to pay your bill, before you start figuring on his job. If he can and his credit standing is good make a real selling effort to land the job.

Less price talk and more sales argument is what is needed in the campaign to secure most contracts.

Quality of material and well executed work will appeal stronger to most people than just a low price.

is coming from.

Some sheet metal men tell me that they have well to do customers who simply do not pay their bills on time, and that if they ask for money the customer will get sore and they will lose him. Good Lord! Who in Sam Hill wants such customers, anyway? The sooner they get sore and refuse you the next job, the better off you are. Can't you see this, Brother?

On the other hand, when a wealthy customer does not pay his bills on time, you may bet your bottom dollar that he is not wealthy. He is only a four flusher who is merely bluffing you because you are not a business man. Always remember that the wealthy folks always pay their bills. Don't be too anxious to land a job where there is no money. It takes money for

you to run your business. No money, no business. Please get this argument, it is good for your business health.

Now a few words about selling your goods. There is science and art in your business. You as a business man should know these facts. You must have business ideas in order to have the bricks out of which selling talks are made. It takes study and plenty of will power to attain knowledge.

Always have a reason why someone should buy from you. As a salesman, you are not selling goods, you are helping someone buy something. Remember, please, that the customer always has cheap ideas. He always wants the greatest amount of service for the least amount of money. For this you can not blame him, because you, yourself, as a customer want the same thing. Therefore, if you can help the customer buy the right kind of a job, you will profit by it, and the customer will get the most for his money.

The trouble is that some sheet metal men know very little about selling, but must make a bluff at it. He will sail along all right till he runs out of material in his selling talk, and then he must infer many things. Inference is nothing but a sort of a logical guess. You jump across a gap and the customer follows you but does not understand you. When this happens, your sale is getting weak, and you misfire so often that the customer finds out pretty soon that you are at sea, and has you bluffed to a frazzle.

The man who knows the facts about his business sells better and more than does the man who only guesses.

Stop being a guesser. Become a real executive of your business and teach the customer how to buy from you. Too many sheet metal men say and believe that because they are good mechanics they ought to get the most business. Forget it, Brother. You are a business man, not a mechanic. Many men who never saw a sheet metal shop succeed in business because they realize that they can buy mechanical power, but not business power. They furnish ability of the highest kind, and buy the cheaper kind, which is mechanical power.

Don't let your business bluff you. You should be the master because you are the one who asks the customer for the profit. This being the case, you should be smart enough to convince the customer that you are a business man who commands confidence, and as such, he can rely on you to do a good service without a guess.

We must call a spade a spade. The real reason why competition gets the work is because they are better business men. Of course, you will disagree and say that price gets the job. Price, H—1. The only reason why a man will talk price is because he is too dead to talk anything else, and gives his profits away to the customer, thereby paying the price of ignorance. Price has nothing whatever to do with a sale if the salesman can show a good reason for the higher price. We as sheet metal men should have more courage, and less hard luck stuff. After all is said and done, it is what is in your brain box that brings you the profits. Absolutely nothing else. Again the old saw, "Learn More, Earn More."

Four Hundred Acre Park Presented to Middletown by Armco.

On behalf of the American Rolling Mill Company, President George M. Verity has presented a large natural park to the people of Middletown, Ohio, where the mills of the Company are located. For the present, however, the park will remain under the supervision and care of the Company, the arrangement providing that the city of Middletown may take it over when it is able to develop and maintain it.

The park has a permanent camp, equipped with a mess hall that will seat sixty people, with kitchen and store rooms adjoining. There are tents with sleeping quarters for thirty persons. A concrete swimming pool has been installed. The camp and other recreation buildings are at present operated under the auspices of the Girl Scouts, who will occupy it until about the middle of August, when the Middletown Business Girls' Club will take charge.

Passes may be obtained at the Armco general offices, but these passes will not entitle any one to visit the permanent camp, so that the girls will be entirely free from molestation.

Later in the Fall, the Boy Scouts and other organizations will be permitted to occupy the permanent camp.

Truly this is a fine example of civic cooperation and willingness to do something of real worth for the community in which a man makes his money. It would be well if we had more of this sort of men and more of this sort of community upbuilding.

United States Patent Rights Are Assigned for Firepot.

Charles R. Lambert, Detroit, Michigan, assignor to Clayton and Lambert Manufacturing Company, Detroit, Michigan, a Corporation of Michigan, has procured United States patent rights, under number 1,381,924, for a firepot described as follows:



In a fire pot or the like, a top plate comprising a sheet metal stamping having a central apertured portion and a flanged portion adjacent said opening, and inwardly projecting supporting lugs, said supporting lugs being channel shaped in cross section.

Trade-Mark Is Registered in Patent Office.

Under number 144,105, United States Patent Office registration has been granted to S. Cheney and Son, Manlius, New York, for the trade-mark shown in the accompanying illustration. The particular description of goods to which it applies is mower knife and tool sharpeners. Application for registration was filed February 23, 1921, and the company claims use of this trade-mark since 1901.

It takes courage to win against yourself.

Zinc Shingles Make a Roof Which Is Always New and Offer Big Opportunities for Trade Development.

Sheet Metal Contractors Can Build Up a Profitable Business by Using the Facts About Zinc in Their Selling Talks.

In some parts of the country, sheet metal contractors are so alive to the possibilities of trade development in the matter of roofing that they are making organized efforts along this line—as for example, The Roofing, Metal and Heating Engineers of Philadelphia, Incorporated.

A metal which possesses an unusual degree of permanency for roofing is zinc. Until comparatively recent times, American sheet metal contractors in general were not well informed regarding its merits.

Indeed, there are many who are not yet acquainted with all the facts concerning its usefulness and adaptability for roofing purposes.

One of the most authentic sources of information is to be found in the literature of the Illinois Zinc Company which embodies the results of scientific research and experiment of the highest order.

From a recent publication of this company, entitled "The Roof That's Always New," the following helpful paragraphs are extracted:

"That zinc shingles have not been universally adopted for roofs heretofore was due to the form of the shingle rather than to any imperfections to be found in the material itself. In fact, it is impossible to imagine a material more perfectly adapted to its purpose than is zinc for roofs.

"Zinc on the roof of any residence, church, school, railroad station, hospital or garage, will last as long or longer than the building it protects, and still be as good as new. In its natural oxidized state, it forms a roof that is a beautiful soft gray in color. This first oxidation protects the metal, and countless years of exposure will have no further effect upon it.

"The oxidized zinc requires no paint, although it can be painted any color that you wish. It requires no repairs, and cannot deteriorate in any way.

"Zinc is a non-ferrous metal—it can not rust."

"A square of zinc roof, moreover, is lighter than a square of any other durable roofing material. As compared with slate, for instance, it weighs about one-seventh as much and requires a much lighter framing, while forming a better protection against driving rains and snows.

"Zinc can not crack like tile and slate, nor warp, curl, rot or burn like wood and substitute materials. Zinc shingles can not break nor work loose from any cause.

"Zinc, moreover, is cool in summer, and forms an excellent protection against fire and lightning. It eliminates all danger from cinders, fireworks and flying sparks, and a lower rate of insurance should be secured on all buildings where zinc roofs are used.

"That is why zinc has been used on roofs in Europe for more than 100 years. No way was found, however, to apply this ideal roofing material in an artistic manner. It was believed impossible to build as beautiful a roof from zinc as from wooden shingles or tile and slate."

Incidentally, it may be mentioned that the Illinois Zinc Company has performed a distinct and praiseworthy service to the trade by making zinc shingles which are already oxidized and, therefore, "weathered" in advance of their application to the roof.

With this new pre-oxidized zinc shingle, it is possible to build a butt-shingle roof of zinc that is in every way as beautiful and as artistic as a roof of wooden shingles.

This gives a shade that's as harmonious as weathered wooden shingles or slate. In case the natural gray is not desired, moreover, the pre-oxidized surface may be

painted any shade or color that you wish.

There are still other points to consider for, in addition to solving the problem of artistic appearance, the Illinois Zinc Company's zinc shingle incorporates distinct improvements in structural design.

When assembled, each shingle interlocks with the next one in a manner which allows for the expansion and contraction of the metal, yet is absolutely weather-tight and no nails are exposed.

The shingle is easily and rapidly laid. The possibility of incorrect application is reduced to a minimum on account of the simplicity of design and construction.

Sheet metal contractors, who make up their minds to go after metal roofing business would do well to write to the Illinois Zinc Company, 280 Broadway, New York City, and get complete information on the use of zinc shingles and the details of applying them.

Much has been written about opportunity. The impression has been created in some people's minds that opportunity is akin to a special force or principle in the affairs of men. It has been personified so often that folk imagine it to be a kind of shadow-flinger behind the outward show of things.

The fact of the matter is that opportunity is merely a word to describe the juncture of favorable circumstances or the grouping of possibilities in such a way as to render them easier to exploit.

Metal roofing is an opportunity in the most intense meaning of the word. Sheet metal contractors have here a source of profit which yields generous returns for effort expended.

The Base Plate Is Most Important Part of a Satisfactory Tin Plate.

Trip Through Modern Sheet and Tin Plate Plant Shows That Nothing Is Left to Chance.

One of the many pleasant features of the Annual Convention of the National Association of Sheet Metal Contractors, recently held in Pittsburgh, was a tour through the great sheet and tin plate mills of the Follansbee Brothers Company, at Follansbee, West Virginia. About one hundred and fifty sheet metal contractors with their wives and friends took the trip as guests of the Company and learned many things about the making of steel sheets and tin plate.

One of the points that struck me with special emphasis was the fact that the manufacture of tin plate is not merely a matter of mechanics and machinery. Of course, these are important. But an intimate knowledge of the ores and other raw materials and their chemical re-action upon one another during the transformation in the furnaces, are fully as important.

Testing and experimenting with various mixtures of ore, limestone, copper, aluminum and other minerals are of hourly occurrence, and without these it would be a very difficult matter to insure a uniform output of steel sheets, which are the base of tin plate.

A great deal has been said about the weight of the tin and lead coating on tin plate with regard to its lasting qualities, but after all is said and done, the base plate must be free from detrimental chemical elements which cause corrosion and "pin-holing" within the body of the plate and thereby make possible corrosion through the action of the atmosphere.

So at the Follansbee mill we had the opportunity of seeing how the pig iron was loaded into the smelting furnace, together with a certain percentage of limestone and clean scrap. We saw the great mass of boiling metal reaching the proper temperature and consistency.

In the Open Hearth Furnace which was in operation, we saw the slag floating on top, and this slag absorbs

the phosphorous, sulphur and other deleterious elements which under the Bessemer Process remain in the iron and which are the principal cause of corrosion and brittleness of the finished Bessemer steel plate.

Broadly speaking, an Open Hearth Furnace is one with the hearth exposed to the action of flame in which the charge is placed. The hearth resembles a large trough—ten by twenty feet, or larger according to capacity—the ends and sides of which are six feet or higher. In the ends are "ports," through which the flame enters, and in the front are doors through which

the furnace is "charged" with pig iron, selected scrap, limestone and ore. The hearth is lined with magnesite, and the limestone acts as a "purifier," in that it causes the sulphur and phosphorus to gather into the slag which the high blast flame forms on top of the molten iron.

Owing to the fact that very little iron ore of low phosphorus content is to be found today, the Open Hearth Process is the only one which insures a reasonably pure base for tin plate. In the making of Bessemer steel, it is impossible to remove the phosphorus and sulphur and this base should, therefore, only be used for such tin plate as is not intended to be exposed to atmospheric influences for any length of time. For tin cans it may be all right, but for roofing purposes, tin plate with a Bessemer steel base, is said to be practically worthless.

When the iron has been thoroughly melted, a sample is dipped out, cast into a brick shape and when cooled is sent to the laboratory for analysis and tests, which show the exact nature, both chemical and physical, of the charge being worked. There is no guess work, as the elements of the charge are always known and under control.

After the proper physical consistency and chemical contents have been arrived at, the molten metal is run off into a great bucket or "ladle," the slag which contains all the phosphorous and other elements of im-

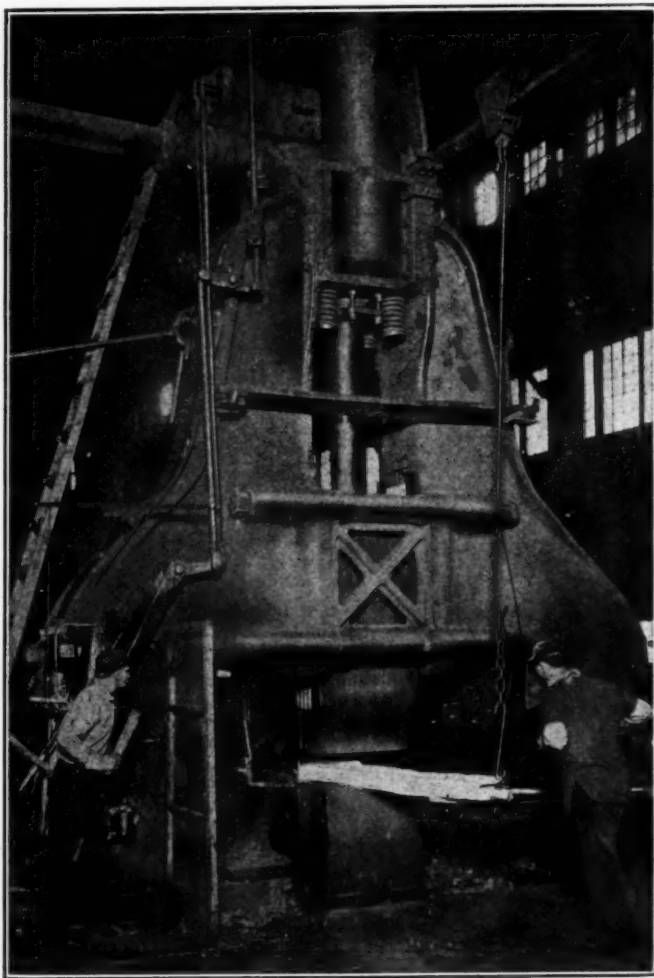


Figure 1.—The Great Eight-Ton Hammer on Which the Ingots Are Hammered Into Billets for Scott's Extra Coated Tin Plates.

purity, floating on top because of its lighter weight. The metal is then drawn off through an opening in the bottom of the bucket into a large pipe connected with the bottoms of a group of ingot molds, thereby preventing still further any possibility of slag getting into the ingots, the molds being arranged in a series of circles around the main paving pipe.

We saw a "heat" being poured in this manner, and were then conducted to the re-heating furnaces, a view of which is shown in Figure 2. After the ingots have been cooled off they are removed from the molds and stacked until it is time for them to be placed in the re-heating furnace. This is done by means of a large, electrically operated "charger," and it was an interesting sight to observe the man in charge shoot his heavy machine down the steel track on the floor, pick up an ingot, run back in position to deliver the ingot into one furnace, switch to another furnace, grab a white hot ingot, pull it out and place it in position under the eight-ton hammer where it is reduced into a billet by eight hundred ton blows, the ingot being turned every few blows.

This, by the way, is the only steel mill where such a method is employed, all others using the ordinary "rolling" method.

It is stated by the Follansbee Brothers Company, that by hammering the ingot, which measures $8\frac{1}{2} \times 8\frac{1}{2}$ inches at the top, $10\frac{1}{2} \times 10\frac{1}{2}$ inches at the bottom and

material.

The hammer is shown in Figure 1.

From the hammer, the billets go to the rolling floor where they are rolled into long thin bars, six inches in width and from eighty to one hundred feet long, pass-



Figure 2.—Electric Charger Which Handles the Ingots In and Out of the Reheating Furnaces and Delivers Them to the Hammer.

ing back and forth between heavy steel cylinders until they reach the desired dimensions.

Then we saw a crew of men chop these bars into shorter pieces, 18 to 24 inches in length, depending upon the width of the sheet.

From here we passed through the sheet mill, where we observed the transformation of a short bar into a long thin sheet. Two or more sheets are rolled together, and it was quite interesting to note how dexterous the operatives had become in separating them, so that the scales which had formed on the surface during the rolling process might be removed by immersing the sheets into a "pickling" bath, which, by the way, was not a particularly pleasant place, so far as odors were concerned.

The next step was the annealing department. Sheets were stacked about four feet high on the floor of what is called an annealing box—approximately five feet wide, eight feet long and five feet high, covered with a cast steel hood that fits over the stack of sheets and reaches the floor. This box when filled is placed with others in an annealing

furnace and here the sheets are "annealed"—superheated, cooled and heated several times, each time being pickled, washed, cold rolled and finally throughout washed before being sent to the tinning department.

Here they were immersed into large tanks with mol-

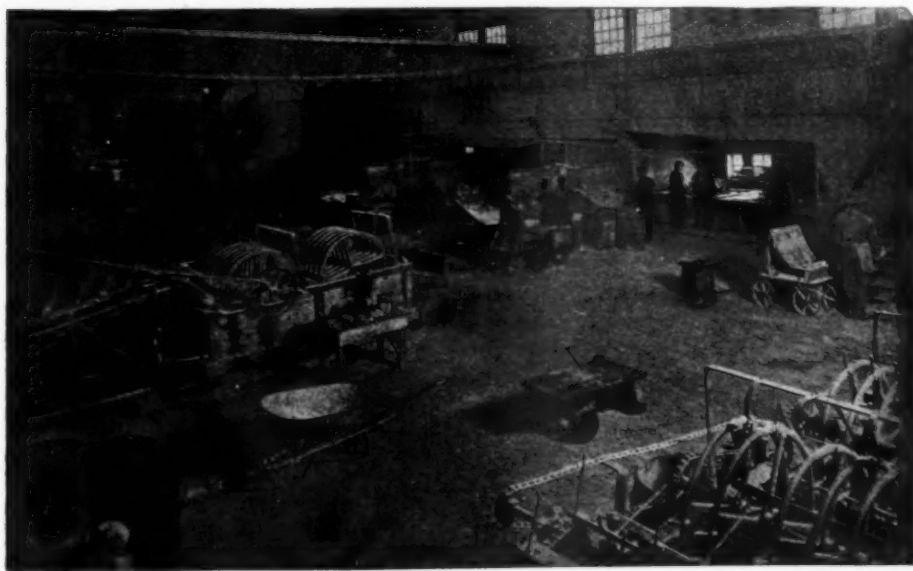


Figure 3.—Section of the Tinning Department.

sixty inches in length, into a billet six inches square and ten feet long, all air or "blow" holes are removed, this resulting in a better and more uniform working of the crystals, which is said to be one of the chief reasons for the superiority of hammered over rolled

ten tin or tin and lead—the first for Dairy Tin Plate, and the second for Scott's Extra Coated Roofing Terne Plates.

It was a surprise to many of the visitors to see the large quantities of flour and "middlings" that were used in this department. In fact, many of the visitors had no idea that flour was used at all in a tin plate mill. But here we saw women handling the tinned plates in the polishing machines and with the aid of flour produce the brilliant "shine" on the "coke" plates and the dull, mottled effect on the terne plates. Figure 3 shows a section of the tinning department, the box with the wheel-like apparatus at the lower left center being one of these polishing machines.

One of the latest improvements which had been put into operation shortly before our visit to the mill is the "powdered coal plant" in which all the fuel used in the reheating and annealing furnaces was being reduced to a fine powder, which is then shot at the rate of five seconds per ton of coal into the generators and burns just like gas. The powder is so fine that it will go through holes through which water cannot be forced by the same pressure.

The Company's new plant at Toronto, Ohio, which is now near completion is to be operated entirely by heat generated with powdered coal. An idea can be formed of the enormity of a big sheet mill and tin plate plant like this one, when I tell you that the main building where we began our tour of inspection is 2,800 feet long, and there are many "L's" and side wings for the accommodations of the various departments, and in no instance does the travel of a sheet cross its own path.

Patent Office Registration for Slab Zinc Is Granted.

United States Patent Office registration has been granted to The New Jersey Zinc Company, Newark and Franklinborough, New Jersey, for the trademark depicted herewith.

STERLING
144,137.

The particular description of goods to which it applies is slab zinc. Application for registration was filed December 11, 1920.

Illinois Auxiliary Is Hard at Work on Membership Campaign.

President P. A. Johnson, Vice-president L. A. Denoyer and Secretary F. I. Eynatten, of the Travelers' Auxiliary to the Illinois Sheet Metal Contractors' Association, met at Peoria on July 18th and discussed plans for the membership drive which the Auxiliary has undertaken.

L. A. Denoyer, of the Canton Art Metal Company, Canton, Ohio, is Chairman of the Membership Committee. Other members are: Sam Burgess, of the Rock Island Register Company, Rock Island, Illinois; William H. Bryant, of Joseph T. Ryerson & Son, Chicago; W. M. Bivins, of the American Foundry & Furnace Company, Bloomington, Illinois; and Bert Ketchem, of the Wheeling Corrugating Company's Chicago office.

This live committee will no doubt soon show results in the shape of a large increase in the membership.

Every traveling salesman calling on the sheet metal trade in Illinois will find it to his advantage to become associated with this very helpful organization which has for its purpose the progress of the trade in the state.

Dues are five dollars a year and applications may be sent to any of the officers or to the Committee.

Success Is Gained Only by Careful Planning and Execution.

Theodore Roosevelt was a great hunter—great because his hunts were well planned. He got what he went after. Before starting upon an expedition he knew exactly the kind of game he wanted. In a sense he was taking aim before he saw the game.

And he knew that the kind of game he wanted could not be bagged with an air rifle or a shotgun.

The man who would shoot at big success must exercise the same kind of common sense, thinking and planning ahead, that the big game hunter would exercise.

Notes and Queries.

Iceless Refrigerators and Machines.

From Chris Ehlinger, Vinton, Iowa.

Please advise who makes iceless refrigerators and machines?

Ans.—Iceless Machine Company, 12014 Iowa Avenue, Cleveland, Ohio; Isko Company, 111 West Washington Street, Chicago, Illinois; Blazek and Company, 2249 West Lake Street, Chicago, Illinois; Frigidaire Corporation, 317 North Michigan Avenue, Chicago, Illinois.

Galvanized Steel Spiral Pipe.

From Wilson Hardware Company, 3017 South Adam Street, Peoria, Illinois.

Will you kindly advise who in Chicago manufactures 8, 10, 12 and 14-inch galvanized steel riveted spiral pipe?

Ans.—Robertson Brothers Manufacturing Company, 5401 South Western Avenue, Chicago, Illinois.

"Monarch" Oil Cook Stove.

From Morris DeJong, Springfield, South Dakota.

Can you tell us who manufactures the "Monarch" Oil Cook Stove, as we would like to purchase wicks for same?

Ans.—Excelsior Stove and Manufacturing Company, Quincy, Illinois.

Flag Pole Top.

From Adolph Vogel, Box 31, Woodford, Wisconsin.

We would like to know who manufactures a cast iron flag pole top with pulley on the inside?

Ans.—George B. Carpenter & Company, 436 North Wells Street, Chicago, Illinois.

Furnace Brushes.

From C. E. Walters Company, 248 Lincoln Highway, DeKalb, Illinois.

Please let us know where we can secure long handled furnace brushes?

Ans.—American Brush Corporation, Incorporated, 1222 West Madison Street; J. H. Clark Hardware Company, 137 West Lake Street; and Phoenix Brush and Manufacturing Company, 160 North Wells Street; all of Chicago, Illinois.

Illustrations of New Patents

Watch This Page. Keep Yourself Informed Concerning Improved Devices Which May Save Labor in Your Shop or Add Another Source of Income to Your Retail Store.

1,381,982. Washing Machine. William C. Forsee, Kansas City, Mo. Filed March 18, 1920.

1,381,997. Handsaw. William Louis Jacques, Central Falls, R. I. Filed July 2, 1920.

1,382,067. Non-Skid and Traction Band for Lawn Mower Wheels. Leo B. De Hymel, Denver, Colo. Filed December 8, 1919.

1,382,089. Wheel for Lawn Mowers and the Like. Allen Johnston and Charles M. Kraner, Ottumwa, Iowa, assignors to Johnston Pressed Gear Company, Ottumwa, Iowa, a Corporation of Iowa. Filed January 25, 1918.

1,382,101. Electrically Heated Article to Avoid Damage Through Overheating. George Harry Lofts, Hobart, Tasmania, Australia. Filed April 15, 1920.

1,382,109. Combination Tool. Columbus U. Matsler, Plainview, Texas. Filed March 22, 1920.

1,382,128. Oil Cooking Stove. James Shannon, Canonbury, and William Morrison Simpson, Hastings, England. Filed November 9, 1920.

1,382,153. Animal Trap. Winfield A. Wells, Spencer, N. Y. Filed June 3, 1920.

1,382,199. Metal Pole, Girder, or Beam. Maurice Lachman, New York, N. Y. Filed April 22, 1920.

1,382,268. Washing Machine. Charles L. Brehio, Worcester, Mass. Filed July 7, 1920.

1,382,292. Holder for Safety Razor Blades. Harrison D. Kempton, Providence, R. I. Filed November 29, 1919.

1,382,301. Safety Razor. Mary M. McCaffrey,

Washington, D. C., assignor of one-half to Isabel Lees Bayless, Washington, D. C. Filed August 30, 1920.

1,382,347. Shaving Brush. Benjamin H. De Haven, Pittsburgh, Pa. Filed December 29, 1919.

1,382,365. Door Hanger. Albert L. Kern, Aurora, Ill., assignor to Richards-Wilcox Manufacturing Company, Aurora, Ill., a Corporation of Illinois. Filed December 2, 1920.

1,382,400. Clamp. L. D. Ross, Elyria, Ohio. Filed June 13, 1919.

1,382,413. Tool Holder. Benjamin Thomas Carson, Rensselaer, N. Y. Filed March 9, 1920.

1,382,425. Mousetrap. Samuel M. Kass, Philadelphia, Pa. Filed July 31, 1919.

1,382,441. Lawn Mower. Harman L. Richendifer, Bladen, Nebr. Filed July 13, 1920.

1,382,447. Boring and Threading Tool. Daniel Doolittle Wells, Burkburnett, Texas. Filed October 15, 1919.

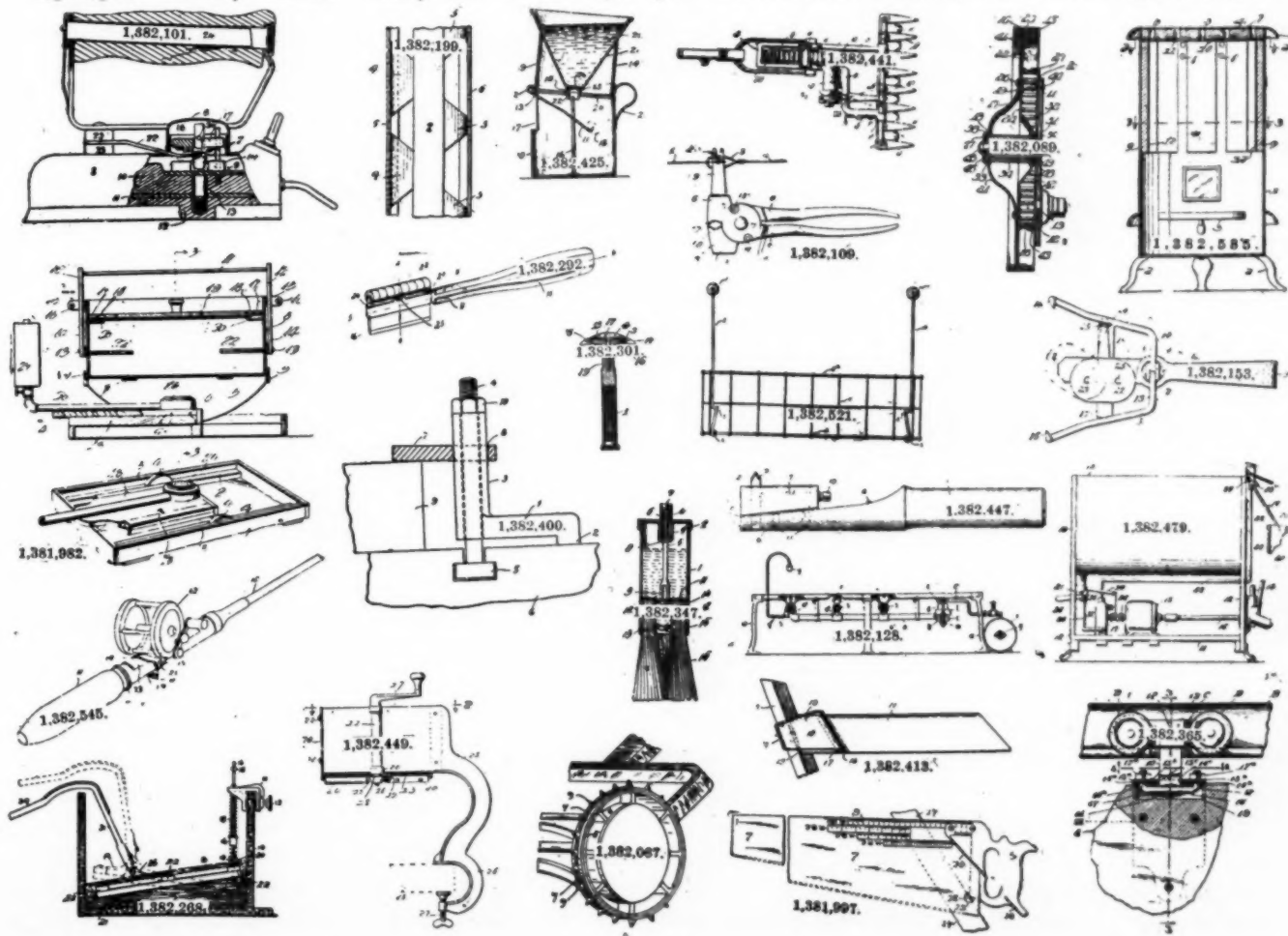
1,382,449. Vegetable Crusher. Wladyslaw S. Andrysiak, South Bend, Ind. Filed November 13, 1919.

1,382,479. Washing Machine and Pump Mechanism Therefor. John A. Crawford, Philadelphia, Pa. Filed September 3, 1919.

1,382,521. Clothes Draining Basket. George G. McCormick, Collinsville, Ill. Filed September 4, 1917.

1,382,545. Fishing Reel Clamp. Mitchell D. Price, Miami, Fla. Filed October 22, 1920.

1,382,585. Heat Storing Attachment for Stoves. John H. Wilson, Baltimore, Md. Filed August 8, 1918.



Weekly Report of the Markets

General Conditions in the Steel Industry. Review of Prices and Tendencies in Sheet Metals, Pig Iron, etc.

STEEL TRADE TAKES A TURN FOR THE BETTER.

During the past week there has been a decided increase in demand for steel throughout the country, and this has been reflected in a slightly higher rate of operation at the steel mills.

The railroads continue this week, as the week before, the mainstay of the steel market in the continued letting of contracts for car repairs or the purchase of material for use in their own repair shops.

There is not much increase in rail orders, but considerable business, relatively speaking, for track material has developed.

Among inquiries that have just come into the market are noted the following: The Maine Central on 200 steel center constructions, the Chicago Great Western on repairs to 200 box cars, the Northern Pacific on 1,000 steel center sills and 1,000 under frames, the Chicago & Northwestern on the repairs to from 1,000 to 5,000 freight cars, the Buffalo, Rochester & Pittsburgh on the repairs to from 500 to 1,000 freight cars, the Chicago, Rock Island & Pacific on 200,000 bolts, the New York Central on a long list of miscellaneous shop requirements, while the Illinois Central has contracted for the repair of 500 gondola cars with the Haskell & Barker Car Co.

Early in the year the mainstay to the steel market was the letting of large rail contracts, but this business soon petered out and next came a larger volume of business from the automobile manufacturers, which in turn died out, leaving the steel mills with an ever growing paucity of orders.

The question of the present hour is whether the turn for the better is to be permanent.

There are indications that this might possibly be the case, particularly so as there has developed in the past week a greater demand for a diversity of steel products from manufacturers, builders, municipalities and oil companies.

Of course, the industry at present is in a state where a few orders brighten the aspect materially, whereas in normal times their letting would not be noticed.

Temporarily at least finished steel production throughout the country has increased slightly.

This increase came during the past week, after two or three weeks of a 20 per cent of capacity operation for the industry, as a whole.

Today this operating average has been raised to a little under 25 per cent of capacity with the leading interest the chief beneficiary.

Steel.

General slashing of prices throughout the industry was the feature of the week in steel.

Almost the entire list of finished and semi-finished steel products is being shaded more or less today.

The publication of a new list of lower prices by the corporation and independents is expected shortly.

The Pittsburgh basing system of price quotations for districts other than Pittsburgh, is no longer being followed in some steel products, and it is predicted that the whole list will be without this prop in the near future.

The case of the Pittsburgh-plus system of quoting prices is still being argued against the United States Steel Corporation, but as predicted some time ago, keen competition is eliminating the system, without the help of any court order.

Plate was the first commodity on which the Pittsburgh-plus system let go its hold, and it is understood that in the Chicago district plates are quoted as low as at Pittsburgh, regardless of freight, if not even lower.

Copper.

Copper producers expect that Germany will spend between \$10,000,000 and \$15,000,000 of the credits that this country is contemplating extending her for the purchase of copper alone, which indicates that some 75,000,000 pounds will be absorbed in that market.

On account of the depreciation of the German mark and the willingness on the part of the German worker to do a full day's work for the time he is paid German copper products plants are running full time, and purchasing their copper here.

Other industries in Germany are doing equally well, and it is reported that Germany is about to enter an industrial boom.

However this may be, that country is being looked to by the American copper producer with ever growing interest.

Tin.

There being no indications of any real increase in the consumption of tin during this Summer, the market authorities generally agree that the market will depend on the willingness and ability of the principal holders to carry their supplies until the business in the tin consuming industries gets better.

The weakness in London lately resulted from what was supposed to be liquidation on the part of some of the English holders, but in the face of some heavy selling the market may be said to have held up pretty well.

Sterling exchange is one of the foremost considerations in our tin market and while the rate has not changed very much during the past few days it has failed to show any real strength as yet.

Solder.

No further changes have taken place in Chicago prices of solder. The quotations now in effect are as follows: Warranted, 50-50, per hundred pounds, \$20.00; Commercial, 45-55 per hundred pounds, \$18.50; and Plumbers', per hundred pounds, \$17.50.

Lead.

Prices are unchanged in the St. Louis market as well as in Chicago.

The slackening in the white lead demand is considered as seasonal. It is still good though not up to the earlier exceptional volume, and the manufacturers report they are still behind in their orders.

Other consuming lines are quiet, but the storage battery interests are reporting gradual improvement.

The general confidence in the situation as a whole is at present not reflected in the buying.

Producers, however, are not pressing sales, and the position shows no sign of heaviness.

Activity is subsiding again in the Middle West at least.

Joplin advices state that basis offerings of \$45, failing to bring any lead ore into the market last week, offerings were advanced to \$47.50, which sellers generally accepted. Joplin shipments last week amounted to 1,552 tons, as against 1,495 tons the week preceding, while shipments since the first of the year total 34,030 tons, as compared with 52,298 tons during the corresponding period last year.

High grade sulphide ore is quoted at \$53.60 and the 80 per cent grades from \$45.00 to \$47.50.

Zinc.

The zinc situation remains very quiet, consumers being hardly heard from at all, but there is a rather firmer tone as producers have steadily resisted any break below 4.25 cents and are not pressing to sell at that figure.

An interesting feature was a sale of prime Western late last week for export to the Orient.

This was not of bonded metal of which there is apparently little or none available, the price paid being the current market on domestic product.

There appears to be no further inquiry of the same sort at the moment, but should additional export business develop it would quickly tighten up this market.

It is reported that some operators are buying some tonnage at present prices.

Joplin advices state that under pressure of present low price level the mines are being stripped of the best ore and that the grade left will require a market price of twice that quoted today to make it possible to mine it.

Sheets.

In the Chicago district, demand for steel sheets seems to be increasing slightly. The Inland Steel Company is operating 14 of its 18 sheet mills this week, a higher rate than in several weeks.

The business is in small lots from many sources, representing nearly all lines of consumption.

Car repairs by railroads in their own shops is bringing out some sheet business. The market generally is lower than established quotations.

Both the independents and the leading interest are booking a heavier tonnage of shipping orders for sheets, and mill operations are improving in corresponding ratio.

A few of the independents will be running at 50 per cent or better within a week or ten days if they have not already attained that rate.

The average is, of course, pulled down by some mills being continuously idle and others operating intermittently.

The general average among the independents is likely to be 25 per cent or better before the week is out.

Whether the improvement in sheet demand is at the expense of prices or is produced by lower prices or is the cause of lower prices being quoted is perhaps a debatable question.

In the steel market it is often doubtful whether the case is one of mills going out with cut prices and stirring up business, or of increased inquiry coming in and furnishing the incentive to cut prices.

There is no question that stocks in the hands of consumers and distributors have decreased very considerably in the past few weeks, and that this is the chief cause if not the sole cause, of the distinctly increased demand upon the mills.

Tin Plate.

Reports from Pittsburgh indicate that specifications against tin plate contracts are increasing slightly although brand new business is not coming to producers in this district. The specifications run from one to several carloads at a time and in the case of some independent makers, slightly increased operations are contemplated at an early date.

Stocks of tin plate in the hands of some consumers seem still to be large, though no doubt some consumers have liquidated largely. Of the consumers with large stocks some, however, are specifying in a moderate way with mills, to piece out. Every effort is being made to reduce stocks, and manufacturing consumers are using sizes that do not fit exactly, when they can make the material do without any extensive loss in area.

Old Metals.

Wholesale quotations in the Chicago district which should be considered as nominal are as follows: Old steel axles, \$12.00 to \$12.50; old iron axles, \$17.00 to \$18.00; steel springs, \$11.00 to \$11.50; No. 1 wrought iron, \$9.00 to \$9.50; No. 1 cast, \$12.00 to \$12.50; all per net tons. Prices for non-ferrous metals are quoted as follows, per pound: Light copper, 6 cents; light brass, 3.50 cents; lead, 2 cents; zinc, 1.50 cents; cast aluminum, 8½ cents.

Pig Iron.

Producers are more disposed to meet competitive prices for iron and consequently buying of small lots is stimulated.

It is notable too that there has been a little more doing of foundry grades for shipment during the third and fourth quarters of the year, but future sales are largely in the minority.

There are still a number of inquiries in the market for prompt shipment, aggregating 2,000 to 3,000 tons.

Virginia furnaces have some little iron available for prompt shipment, but they are hopelessly out of the running so far as competitive prices are concerned.

Almost no southern iron is coming into the North.

Freight rates still handicap southern producers, but they are probably obtaining their full share of the total business being placed in all sections.

Current Hardware and Metal Prices.

AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing Western Hardware and Metal prices corrected weekly.

METALS	HARDWARE	Scratch.	BEVELS, TEE.
FIG IRON.	ADZES.	No. 18, socket Handled .....per doz. \$ 2 50	Stanley's Rosewood handle, new list .....Nets
Northern Fdy. No. 2...\$19 70-20 20	Carpenters'.	No. 344 Goodell- Pratt, list less.....35-40%	Stanley iron handle.....Nets
Southern Fdy. No. 2..... 26 67	Plumbs.....Per doz. \$29 00	No. 7 Stanley...per doz. \$ 2 25	BINDING CLOTH.
Lake Sup. Charcoal..... 36 00	Coopers'.	AXES.	Zincd .....55%
Malleable .....\$19 70-20 70	Barton's .....Net	First Quality, Single Bitted, 3 to 4 lb., per doz. 16 50	Brass .....40%
FIRST QUALITY BRIGHT TIN PLATES.	White's .....Net	First Quality Double Bitted .....per doz. 22 50	Brass, plated.....60%
	Railroad.	BROAD.	BITS.
	Plumbs.....Per doz. \$20 00	Plumbs. Can. Pat., 6-lb. 65 00	Auger.
	AMMUNITION.	Single Bitted (without handles).	Jennings Pattern.....Net
	Shells, Loaded, Peters.	Plumbs, 4 1/2-lb..... 12 50	Ford Car.....List plus 5%
	Loaded with Black Powder, 18%	Double Bitted (without handles).	Ford's Ship..... " 5%
	Loaded with Smokeless Powder .....18%	Plumbs, 4 1/2-lb..... 22 50	Irwin .....35%
	Winchester.	BAGS, PAPER, NAIL.	Russell Jennings.....plus 10%
	Smokeless Repeater Grade,	Pounds .. 10 16 20 25	Clark's Expansive.....33 1/4%
	.....10 & 4%	Per 1000...\$5 00 6 50 7 50 9 00	Steer's " Small list, \$22 00..5%
	Smokeless Leader Grade,	BALANCES, SPRING.	" " Large " \$26 00..5%
	.....10 & 4%	Sight Spring.....Net	Irwin Car.....35%
	Black Powder.....10 & 4%	Straight .....Net	Ford's Ship Auger pattern Car .....List plus 5%
	U. M. C.	BARS, WRECKING.	Center .....10%
	Nitro Club .....10&4%	V. & B. No. 12.....\$0 45	Countersink.
	Arro W.....10&4%	V. & B. No. 24..... 0 75	No. 18 Wheeler's...per doz. \$2 25
	New Club .....10&4%	V. & B. No. 324..... 0 80	No. 20 " " " 3 00
	Gun Wads—per 1000.	V. & B. No. 30..... 0 85	American Snailhead " 1 75
	Winchester 7-8 gauge 10&7 1/4%	V. & B. No. 330..... 0 90	" Rose " " 2 00
	" 9-10 gauge 10&7 1/4%	BASKETS.	" Flat " " 1 40
	" 11-28 gauge 10&7 1/4%	Clothes.	Mahew's Flat " " 1 00
	Powder.	Small Willow...per doz. \$15 00	" Snail " " 1 00
	Each	Medium Willow. " 17 00	Dowel.
	DuPont's Sporting, kegs. \$11 25	Large Willow... " 20 00	Russel Jennings.....plus 10%
	" " 1/4 kegs 3 10	Galvanized. 1 bu. 1 1/4 bu.	Gimlet.
	DuPont's Canisters, 1-lb.. 55	Per doz.....\$16 08 \$18 72	Standard Double Cut Gross \$3 40
	" " kegs.. 22 00	BEATERS.	Nail Metal Single Cut .....Gross \$4 00—\$5 00
	" " 1/4 kegs 5 75	Carpet. Per doz.	Reamer.
	" " canisters 1 00	No. 7 Tinned Spring Wire..\$1 10	Standard Square.....Dox. \$2 50
	Hercules "E.C." kegs..... 22 50	No. 8 Spring Wire Cop- pered 1 50	American Octagon... " 2 50
	Hercules "Infallible," 25-can drums 22 00	No. 9 Preston..... 1 75	Screw Driver.
	Hercules "Infallible," 10-can drums 9 00	Egg.	No. 1 Common..... 30
	Hercules "E.C." and "Infal- lible," canisters..... 1 00	No. 50 Imp. Dover.....\$1 10	No. 26 Stanley..... 75
	Hercules W. A. 30 Cal. Rifle, canisters 1 25	No. 102 " " Tinned 1 35	BLADES, SAW.
	Hercules Sharpshooter Rifle, canisters 1 25	No. 150 " " hotel 2 10	Wood.
	Hercules Bullseye Revolver, canisters 1 00	No. 10 Heavy hotel tinned 2 10	Dixton 30-in.
	ANVILS.	No. 13 " " " 2 20	Nos. ....6 66 26
	Solid Wrought...23 & 23 1/2c per lb.	No. 15 " " " 2 60	\$9 45 \$10 05 \$3 45
	ASBESTOS.	No. 18 " " " 4 50	BLOCKS.
	Paper up to 1/16.....10c per lb.	Hand.	Wooden .....20%
	Millboard 3/32 to 1/4...10 1/2c per lb.	3 9 10 12	Patent .....30%
	Corrugated Paper (350 sq. ft.).....\$6.50 per 100 lbs.	Per doz.\$11 50 13 00 14 75 18 00	BOARDS.
	Rollboard .....11c per lb.	Moulders'.	Per doz.
	AUGERS.	12-inch .....Per doz. 20 00	24x24 .....\$13 85
	Boring Machine.....40 @ 40&10%	BELLS.	26x26 14 05
	Carpenter's Nut.....50%	Call.	28x28 18 85
	Hollow.	3-inch Nickleled Rotary Bell, Bronzed base...per doz. \$5 50	30x30 21 90
	Bonney's.....per doz. \$20 00	Cow.	32x32 25 50
	Post Hole.	Kentucky .....30%	36x36 30 50
	Iwan's Post Hole and Well...30%	Door.	Wash.
	Vaughan's, 4 to 9 in. .....per doz. \$14 99	New Departure Automatic \$7 50	No. 760, Banner Globe (single) .....per doz. \$5 25
	Ship.	Rotary.	No. 652, Banner Globe (single) .....per doz. 6 75
	Ford's .....Net	3 -in. Old Copper Bell... 6 00	No. 801, Brass King, per doz. 8 25
	AWLS.	3 -in. Old Copper Bell, fancy 8 00	No. 860, Single—Plain Pump 6 25
	No. 3 Handled...per doz. \$8 65	3 -in. Nickleled Steel Bell 6 00	BOLTS.
	No. 1050 Handled " 1 40	3 1/2-in. Nickleled Steel Bell 6 50	Carriage, Machine, etc.
	Patent asst'd, 1 to 4 " 85	Hand.	Carriage, cut thread, 1/4x6 and sizes smaller and shorter .....50 & 5%
	Harness.	Hand Bell polished List plus 15%	Carriage sizes larger and longer than 1/4x6.....50%
	Common 1 05	White Metal..... " 15%	Machine, 1/4x4 and sizes smaller and shorter.....60%
	Patent 1 00	Nickel Plated..... " 5%	Machine, sizes larger and longer than 1/4x4.....50 & 10%
	Peg.	Swiss " 10%	Stove .....70%
	Shouldered 1 00	Miscellaneous.	Tire .....50 & 10%
	Patented 75	Church and School, steel alloys .....30%	Mortise, Door.
	Pig tin .....29 1/4c	Farm, lbs.. 40 50 75 100	Gem, iron.....5%
	Bar tin .....31 1/4c	Each ....\$3 00 3 75 5 50 7 25	Gem, bronze plated.....5%

Barrel.		CEMENT, FURNACE.		Quilt Frame.		DIGGERS.	
Cast	Net	American Seal, 5 lb. cans, net	\$ 45	No. 30 Ball and Socket,		Post Hole.....	per doz. \$14 00
Wrought	"	" " 25 lb. cans, "	1 87	2 1/4" head....	per gross \$13 00	Eureka.....	
Wrought, bronzed.....	"			No. 50 Ball and Socket,		Iwan's Split Handle (Eu-	
				3 1/2" head....	per gross 14 50	reka)	
Flush.		Asbestos, 5 lb. cans....	45	Hose.		4-ft. Handle....	per doz. 15 00
Wrought	"	Pecora, 5 lb. cans....	45	Sherman's, brass, 1/2", per		7-ft. "	per doz. 30 00
		" 10 lb. cans....	90	doz.	\$0 45	Iwan's Hercules pattern	
Spring.		" 25 lb. cans....	1 87	Double, brass 1/2", per doz. 1 20		per doz.	18 00
Wrought	"					Dividers, Wing	25%
Wrought, heavy.....	"						
Square.		CHAINS.		Saw Fillers.		DRILLS.	
Wrought	"	Breast Chains,		Wentworth's, No. 1, \$12 50; No.		Blacksmiths' Twist (New	
		With Slide.....doz. pairs, 5 50		2, \$18 25; No. 3, \$16 25.		List)	40%
		Without Slide....	5 05			Breast.	
		Doublelatch.....	9 35			Millers Falls No. 12, each	\$45 00
		With Covert Snaps	9 38			" " "112,	25 00
		Picture Chains.		CLAWS, TACK.		Hand.	
		Light Brass, 3 ft. per doz. 1 35		Wood hdl. No. 10....per doz. \$0 95		Goodell's Automatic.	
		Heavy Brass, 3 ft. "	1 75	Forged steel, wood hdl. "	1 75	Nos. 01 02	
		Sash Chain. (Morton's)		Solid steel	2 40	Per doz. 12 00 14 40	
		Steel, per 100 ft.		Giant	50	Goodell's Single Gear, per	
		0	\$2 50			doz.	15 75
		2	3 10	CLEANERS.		Goodell-Pratt No. 4 1/4, per	
		1	3 60	Iwan's Adjustable.....	25%	doz. list, less.....	30%
		Champion Metal.		Iwan's Stationary.....	30%	Goodell-Pratt No. 379, per	
		0R	5 40	Pot.		doz. list, less.....	30%
		2R	5 60	Wire	per doz. \$0 75		
		1R	7 75			Reciprocating.	
		Champion Metal—Extra Heavy.		CLEAVERS.		Goodell's.....	per doz. 25 00
		1H	\$9 50	Family.		DRIVERS, SCREW.	
		Cable Sash Chains.		Beatty's,		Standard	Nets
		Steel.....List Net Plus 15%		inch..... 7 8 9 10		Lock Ferrule	
				Per doz. \$27 00 29 00 33 00 36 00		Clark's Interchangeable....	"
		CHALK, CARPENTERS'.		CLEAVISES.		Goodell's Spiral	"
		Blue	per gro. \$1 40	Malleable	10c lb.	Yankee Ratchet	"
		Red	1 40			" Spiral	"
		White	1 25	CLIPPERS.		EAVES TROUGH.	
		Common White School	"	Bolt	\$2 25 & 6 00	70 & 10% off Standard List.	
		Crayon	25c			ELBOWS—Stove Pipe.	
		CHIMNEY TOPS.		CLIPS.		1-piece Corrugated, Uniform.	
		In bags	per bag \$1 70	Axle .....	.65 @ 5%	Doz.	
		CHECKS, DOOR		Damper.		5-inch	\$1 50
		Corbin	Net List	Standard	per doz. 70c	6-inch	1 60
		Russwin .....	.20%	Troy	" 35c	7-inch	2 10
		CHISELS.		Hame	" 50c	Uniform, Collar Adjustable.	
		Cold.		COLLARS, STOVE PIPE.		Doz.	
		Good quality, 1/4 in., each	\$0 44	Lacquered.		5-inch	\$1 90
		" 3/4 in., "	0 28	Inches 5 6 7		6-inch	2 00
		Diamond Point.		Fancy pattern,		7-inch	2 50
		V. & B. No. 15, 1/4 in.....	0 28	per doz....	80c 85c \$1 15	ELBOWS—Conductor Pipe.	
		V. & B. No. 15, 3/4 in.....	0 48	COMPASSES.		Galvanized Steel, Tin and Terne,	
				Carpenters'	15%	Round Corrugated.	
		FIRMER BEVELLED.		COPPERS—Soldering.		Size	Doz.
		Berg's (Swedish).		Pointed Roofing.		2-inch .....	.60%
		1/2-inch, per doz.....	\$ 4 45	1 lb. and heavier....	per lb. 37c	3-inch .....	.60%
		1- " "	7 15	2 lb.....	" 35c	4-inch .....	.60%
		1 1/2- " "	10 15	2 1/2 lb.....	" 37c	5-inch .....	.60%
		2- " "	17 15	1 1/2 lb.....	" 40c	6-inch .....	.60%
		2 1/2- " "	26 95	1 lb.....	" 43c		
		Round Nose.		CORD.		ENAMEL, STOVE.	

FORKS.		HOOKS.		KNIVES.	
Manure.		Awning, No. 60.....per gro. 50%		Beet Topping.	
4-tine.....New prices		Belt.		Clyde, 9-in. Scimitar Blade,	
GAUGES.		Brown's .....70&5%		doz.	
Cream Pall.		Jones' .....65&5%		California .....3 40	
Fairmount.....per doz. \$3 75		Box.		Butcher.	
Marking, Mortise, etc.....		No. 6 8 10 12		Per doz.	
.....Nets		Each .....\$0 39 0 77 0 36		Beechwood Handles, 6"	
Wire.		Bush.		blade .....\$4 00	
Disston's .....25%		Common Axe Handle,		Beechwood Handles, 7"	
GIMLETS.		per doz. ....\$22 00		blade .....4 65	
Discount .....25&40%		Chain.		Beechwood Handles, 8"	
GLUE.		Inch. 1/4&5/16 3/4 7/16 1/2		blade .....5 65	
Bulk.		Pr. 100 \$7 60-8 10 9 75 11 50 13 60		Cooper's Hoop .....15%	
B Amber.....per lb. 35c		Clothes Line.		Corn.	
A White....." 40c		Japanned .....per doz. 45c@1 40		Clipper .....per doz. \$1 75	
H. S. Amber....." 32c		Galvanized....." 75@1 50		Disston's No. 2...." 5 85	
Liquid.		Coat and Hat.		Earle's" 3 00	
Army & Navy.....40%		Common Wire per gro. 1 25-1 65		Woodford" 2 25	
Le Page's—		Conductor.		Drawing.	
List "A".....37 1/2%		Iwan's Tinned Sickle.....List		Standard .....List&5%	
List "B".....25 1/2%		Corn.		Adjustable .....15%	
List "C".....25 1/2%		Common, riveted, red, per dz. Net		Barton's Carpenters' .....15%	
GREASE, AXLE.		Little Giant....."		Hay.	
Wood Boxes.		Grass.		Iwan's Solid Socket..doz. 13 00	
Fraser's .....per gro. \$12 00		Common Nos. 1 3 5 7		Heath's" 13 00	
Hub Lightning.....7 50		Per Doz...\$4 50 3 50 3 75 3 25		Iwan's, Sickle Edge.. " 18 00	
Wood Palls.		Hammock.		Iwan's Imp'd Serrated " 18 00	
Fraser's, 15 lb. \$1.00; 25 lb. \$1.50		With plate.....per doz. 1 10		Hedge.	
each.		With screw....." 1 00		Challenge .....per doz. \$6 00	
Hub Lightning, 15 lb. 90c; 25 lb.		Lambrequin, or Drapery,		Disston's No. 1...." 7 50	
\$1.21 each.		per gro. ....30c		Mining.	
Tin Cans.		Picture .....50%&50%&10%		Common, Single .." 60	
Fraser's.		Potato and Manure.....Nets		Common, Double.. " 90	
1 1/2 lb. per doz.....\$1 75		Screw.		Streeter, 4-blade.. " 1 20	
2 lb. per doz.....3 25		Brass .....70%		Streeter, 6-blade.. " 2 00	
GRINDSTONES.		(See Goods, Bright Wire.)		Patty.	
Family.		Seat Spring.....per lb. 5 1/2c		Common .....per doz. \$0 75@1 50	
Inches.. 7 8 10 12		HUSKERS.		Lander's .....1 75@2 50	
Per doz. 20 50 21 75 22 25 30 50		Nos. B E		Scraping.	
Mounted.		Per doz.....New Nets		Beech Handle 90@1 10	
Ball Bearing.. 1 2 3		No. 59.....per doz. New Nets		Lander's .....5 50@6 50	
Each .....\$4 75 5 00 5 25		Plane.		KNOBBS.	
GUNS.		Wood Bench..Add 10% to list		Door.	
Iver Johnson Champion Single		IRONS.		Mineral .....per doz. \$1 80	
Barrel Shot Guns.....Net		Sad.		Porcelain .....1 90	
Double Barrel, Hammerless.."		Charcoal .....per doz. \$11 00		Jet .....2 00	
HAFTS, AWL.		Common, polished, per		LADDERS.	
Brad.		100 lbs. ....7 75		Common Long.	
Common .....per doz. \$0 35		No. 70 Asbestos.....\$1 50 net		Per ft. ....17c&23c	
Pag.		No. 100 .....1 75 net		Extension.	
Patent, plain top.."		Common, nickel plated... 8 25		Per ft. ....22 to 28	
Patent, leather top .."		Mrs. Pott's,		Step.	
Sewing.		No. 55 J, " " "		Common, per ft.....23c	
Common"		No. 50 T, " " "		Common, with Shelf, add 10c.	
Patent"		No. 55 T, " " "		IXL .....34c	
HAMMERS, HANDLED.		Tailors' Sad.....per lb. "		Challenge, 6 to 9 ft.....55c	
Each, net		Tailors' Goose.....per lb. "		10 to 16 ft.....60c	
Blacksmiths, Hand, No. 0,		IDEAL.		LANTERNS.	
26 oz.....\$1 35		6 lb. Household .....\$3 50		Bull's Eye Police.	
Engineers', No. 1, 26 oz.....1 35		9 lb. Dressmakers' .....4 25		3-in. Flash' Light per doz. \$18 00	
Farriers', No. 7, 7 oz.....1 41		14 lb. Tailors' Goose .....5 50		LEADERS, CATTLE.	
Machinists', No. 1, 7 oz.....1 08		Tuyere.		Nos. 51 52	
Nail.		Single Duck Nest per doz. \$5 25		Per doz.....\$1 35 1 45	
Vasadium, No. 4 1/2, 16 oz.,		Double Duck Nest.. " 6 25		LEATHER, LACE.	
each .....\$1 50		Sutton .....each 2 60		Rawhide 1/4" .....100 ft. \$2 40	
V. & B., No. 1 1/2, 16 oz.,		JACKS.		1/2" .....4 40	
each .....1 13		Locomotive .....20%		LEATHERS, PUMP.	
Garden City, No. 1 1/2, 16		Wagon.		Valve and Plunger.....10%	
oz., each .....94		Richard's No. 1..per doz. \$15 50		LEVELS.	
Tinner's Riveting, No. 1, 8		Miller .....20 00		Disston, No. 28 Asst.....\$22 05	
oz., each .....80		Oliver,		" No. 18, 20 in..each 1 83	
Shoe, Steel, No. 1, 12 oz.,		Nos. 0 00		" No. 22, 24 in..each 2 40	
each .....72		Each .....\$0 60 \$0 80		" Shafting, 6 in.....19 35	
Tack.		Standard,		" 6 in. gr. glass 24 20	
Magnetic.		Nos. 1 2		" No. 1 Asst.....5 75	
No. 5, each.....1 00		Each .....\$0 60 \$1 00		" No. 9 Asst.....12 40	
HAMMERS, HEAVY.		R-W		" 24-28 in..each 1 03	
Farriers' .....10%		Big Lift .....40%		" 28-30 in..each 1 09	
Masons'.		Tiger .....40%		LIFTERS.	
Single and Double Face.....50%		KETTLES.		Stove Cover.	
HANDLES.		Brass .....15%		Coppered..per gro. \$3 25@5 50	
Auger.		Cauldron .....40&5%		Alaska....." 8 0	
Common Assorted, per doz. \$0 75		Copper .....per lb. 27		Alaska....." 10	
Pratt's Adjustable, Nos.		Manlin .....40&10%		Transom.	
1 & 2, per doz.....6 00		Sugar .....50%		Payson's .....55%	
Ives' Adjustable...per set 1 35		HOES.		LINES.	
Axe .....30%		Garden .....Net		60-ft. Jute.....per doz. \$0 95	
Chisel.				60-ft. Sisal....." 40	
Hickory, Tanged, Firmer, As-				50-ft. Cotton....." 15	
sorted, 55c; Large, 85c per				50-ft. Braided Cot-	
doz.				ton .....35	
Hickory, Socket Firmer, As-					
sorted, 70c; Large size, 80c					
per doz.					

LINING, STOVE. Bricks .....per crate 42c	NAIL SETS. See Sets.	PARENS. Apple. Goodell's .....per doz. \$10 80 Turntable " 11 40 White Mountain " 8 40 Reading No. 78 " 11 40	Lineman's Side Cutting. Berg's (Swedish). In. 6 7 8 Blk. Pol. Face, doz. ....\$30 70 20 00 23 25
LOCKS Barn Door. No. 60 Stearns...per doz. \$12 00 No. 80 " " " 24 00	NETTING, POULTRY. Galvanized before weaving...50% Galvanized after weaving...40%	Potato. Goodell's Saratoga, 10 1/2 in., doz. 6 50 Goodell's Saratoga, 5 in., doz. 5 50	Long Nose Side Cutting. Berg's (Swedish) In. 5 6 Blk. Pol. Face, doz. \$12 25 15 20
MACHINES. Riveting. Stearns No. 1...per doz. \$16 00 Tensioning. No. 50 Peace's Spoke, each \$16 00	NIPPERS. End Cutting. Berg's (Swedish) In. 5 6 Per dozen.....\$12 60 15 20 End and Diagonal Cutting. Berg's (Swedish) In. 5 6 Per dozen .....\$10 05 12 00	PICKS. Adze Eye Ore.....22 1/2% Drifting and Poll Picks.....22 1/2% Plumbs, Railroad .....22 1/2% Surface .....22 1/2%	Flat and Round Nose. Berg's (Swedish) Flat, In. 4 6 8 Blk. Pol. Face, Doz. ....\$8 90 13 35 19 65 Berg's (Swedish) Round, In. 4 6 8 Blk. Pol. Face, Doz. \$11 15 16 30 23 25
MAIL BOXES. See Boxes.	HOOF. Heller's .....40&10% V. & B., No. 52, each....\$2 25	FINCERS. Carpenters', cast steel, No. 6 8 10 12 Each \$0 55 \$0 72 \$0 93 \$1 03 Blacksmiths', No. 10.....\$ 96 Heller's .....List plus 10%	POINTERS, SPOKE. Stearns' No. 1...per doz. \$10 00 " No. 2.... " 12 00
MALLETS. Carpenters'. Fibre Head, No. 2 per doz. \$16 50 " No. 3 " 19 50 " No. 4 " 23 50 Round Hickory per doz. \$3 00—5 00 Round Lig-numvitae " 6 25—10 50 Square Hickory " 3 50—5 50 Square Lig-numvitae " 3 00—12 00	NOZZLES. Hose. Magic .....per doz. \$9 50 Diamond " 5 75 NUTS, HOT PRESSED. Square Tapped. \$2.41 off per 100 lbs. Hexagon Tapped. \$2.41 off per 100 lbs.	PINS. Clothes Common, per box of 5 gro. \$0 35 Picket. Fluted, 15-in....per doz. \$1 10 Fluted, 21-in.... " 1 60 Spiral " 1 90	POKERS, STOVE. Wrt Steel, str't or bent, per doz. \$0 75 Nickel Plated, coll han'ts " 1 10
FINNERS. Hickory .....per doz. \$2 25 MATS. Door. National Rigid .....5&10&5% Acme Steel Flexible.....50%	OILERS. Chase Pattern. Brass and Copper.....10% Zinc .....20% Railroad. Coppered .....33 1/2% Steel. Copper Plated .....50-10-5%	PIPE. Conductor. Plain Round and Round Corrugated. 29 Gauge .....55¢ 28 "45¢ 26 "35¢ 24 "10% Square Corrugated A and B and Octagon. 29 Gauge .....40% 28 "40% 26 "30% 24 "10% Galvanized Toncan Metal, Genuine O. H. Iron, Lyonore Metal, Charcoal Iron and Keystone C. B. Plain Round and Round Corrugated. 29 Gauge .....40% 26 "35% 24 "10% Square Corrugated A and B Polygon and Octagon. 29 Gauge .....40% 26 "30% 24 "10% 14 and 16-oz. Copper, all designs .....10%	POLISH. Metal. Wizard, 6-oz.. per gross \$21 00 " 1/2-pt.. " 24 00 " 1/2-gal. " 12 00 " 1-gal. " 21 00
STOVE. No. 2.....per gro. Nets No. 1..... " " No. 1 Asbestos Toasters or wire-covered Stove Mats, with handle....per doz. 1 10 No. 2 Asbestos Toasters, with ring .....per doz. 60	OPENERS. Can. Delmonico .....per doz. \$1 30 Never Slip..... " 65 Crate. V. & B.....per doz. \$7 25-11 00	PORTICE ELBOWS. Galvanized and Terne Steel. 1 -inch .....35% 1 1/4 -inch .....35% 1 1/2 -inch .....35% 2 -inch .....35% Discounts on Round apply on sizes 2-inch to 6-inch inclusive. Freight allowed on 15 dozen or more, to all points where freight rate does not exceed \$1.00 per 100 lbs. Less than 15 dozen F. O. B. Factory. Terms 30 days net, 1% ten days. Standard Gauge Conductor Pipe, plain or corrugated. Not Nested .....60 & 10% Nested solid .....60 & 15%	STOVE. Black Eagle Paste 5-oz. \$19 25 " " 1/2-lb. 21 00 Black Eagle Liquid, 6-oz. per gross. 16 20 Black Kid Paste, 6-oz. per case 19 25 Black Kid Paste " 21 00 Black Jack Liquid, 1/2-pt. per gross 16 20 Black Kid Liquid, 1/2-pt.. 24 00 Black Jack Paste, No. 10 per gross 16 20
MATTOCKS. Plumbs 25% MAULS. Wood Choppers'. Lake Superior & Oregon pat. ....40&5%	OUTFITS, COBBLING. Combination .....per doz. \$16 00 Economy " 8 50 Family " 14 50	PAIRS. Cream. 14-qt. without gauge, .....per doz. \$9 50 18-qt. without gauge, .....per doz. 11 00 20-qt. without gauge, .....per doz. 11 75 Sap. 10-qt., IC Tin....per doz. \$4 00 12 " " " " 5 50	PRESSES, FRUIT AND JELLY Enterprise Manufacturing Co. 25%
MEASURES. Galvanized, doz .....Nets Japanned, doz. ....Nets	STOCK. Galv. qts. 14 16 18 20 Per doz. \$9 75 10 75 12 75 14 50	WATER. Galvanized qts. 10 12 14 Per doz. ....\$5 75 6 50 7 25	PRUNERS. Daston's Pole....per doz. \$18 00 Water's Improved...per doz. 60%
MILLS, COFFEE. Arcade .....40-10%	WOOD. Cable, 2-Hoop....per doz. Nets Cable, 3-Hoop.... " Nets Cedar, 3-Hoop, brass " Nets	STOVE. Per 100 Joints 28 Gauge, 5-inch.....\$15 00 " 6-inch..... 16 00 " 7-inch..... 17 00 30 Gauge, 3-inch..... 10 00 " 4-inch..... 11 50 " 5-inch..... 13 00 " 6-inch..... 14 00 " 7-inch..... 17 00 T-Joint Made up. 6-inch .....per 100 \$40 00	PULLERS. Cork. Daisy .....each \$2 10 Phoenix " 1 40 Quick and Easy.... " 2 70
MITRE BOXES. See Boxes.	PANS. Dripping .....Net Fry. Common .....Nets Acme "	FURNACE PIPE. Double Wall Pipe and Fittings .....40% Single Wall Pipe, Round Pipe Fittings .....40% Galvanized and Black Iron Pipe, Shoes, etc.....40%	PULLERS. Awning-Jap'd .....10% Clothes Line .....10%
MOPS. Cotton, Star (Cut Ends). Pounds 12' 15' 18' 24'-3-oz. Per doz. \$4 50 5 65 6 75 9 00 Enterprise .....10% Parker .....50&5%	ROASTING. Paxton, Nos. 1 2 3 4 Per doz. ....Nets Neverburn Savory, No. 200..per doz. \$8 40	PLANES. Stanley Iron Bench....Net	PUNCHES. No. 22.....per doz. \$3 00 Machine .....per lb. 15
NAILS. Cut Steel .....\$4 45 Cut Iron 4 45 Wire. Common 4 00 Cement Coated. Small Lots..... 4 20	PAPER. Roofing. per square Major, 1-ply .....\$1 25 " 2-ply 2 24 " 3-ply 2 65 Red Rosin.....per ton \$111 45	PLIERS. V. & B. No. 6.....each \$0 57 " No. 7 Gas..... 0 60 " Double Duty 106.. 0 56 " Nut No. 3..... 0 64	PUMPS. Spray. Midget Junior....per doz. \$3 75 New Misty " 6 00 Crescent " 6 50
Picture. Brass Heads .....25% Brads .....50&5% Furniture .....List plus 15% NAIL PULLERS. See Pullers.	SAND AND EMERY. No. 1, per ream, best grade \$5 40 No. 1, per ream, cheaper grade 4 85	Revolving Spring. Stearns, No. 10..per doz. \$5 00 " No. 40.. " 16 00 " No. 60.. " 19 00	SADDLERS'. Common...per doz. \$1 50 to \$5 00

PUTTY. Strictly pure...per 100 lbs. \$6 00	SAWS. Band. Diaston's 2 in. to 18 in.... .....25, 10 & 5% Diaston's 1/4-in. to 1 1/2-in.... .....25 & 10%	SETS. Nail. Square head.....per doz. 1 34 Cup point, knurled " 1 78	SPRINKLERS, LAWN. Stearn's No. 1....per doz. \$11 50
RAIL. Barn Door. Matchless, 1-in..... 5c Matchless, 1 1/4-in..... 7c Storm King..... 5c	Butchers'. Diaston's No. 2, 14-in.... 18 20 " No. 2, 18-in.... 19 50 " No. 2, 22-in.... 20 85 " No. 7, 16-in.... 20 00 " No. 7, 20-in.... 21 35 " No. 7, 24-in.... 23 35 " No. 7, 28-in.... 25 00	Rivet. Farmers'.....per doz. 2 50 Tinnars' 3-4..... 5 75 " 00-0..... 8 75	SQUARES. Steel and Iron.....Net (Add for bluing, \$3.00 per doz. net) Mitre.....Net Try.....Net Try and Bevel.....Net Try and Miter.....Net
Sliding Door. Bronzed wrought iron, .....per ft. 8 1/4c	Compass. Diaston's No. 20 Jackson... 4 00 " No. 40 Sampson 2 50 " No. 2 & 77, 10-in. 6 05 " No. 9, 10 in.... 6 80	Saw. Atken's Pattern...per doz. \$6 50 Diaston's Monarch " 9 90 Diaston's Monarch " 12 20 Leach's " " 13 20 Nash's Hand " " 3 15 Nash's X-cut " " 4 20 Stillman's Lever " " 1 30 Stillman's X-cut " " 2 50 Whiting Pattern, " " 7 50 No. 21 " " 7 50 Eccentric Anvil, " " 14 50 Hand No. 395, " " 14 50 N. P. Morrill Pat- tern " " 14 50	Fox's.....per doz. \$3 00 Winterbottom's.....10%
RAKES. Garden. Steel, Bow, 12-in. Teeth \$3 50 Steel, Bow, 14-inch " 3 25 Malleable Iron, 12-in. " 4 75 Malleable Iron, 14-in. " 5 00	Cross-Cut. Diaston's No. 289, 4-ft.... 3 15 " No. 289, 6-ft.... 6 15 " No. 289, 8-ft.... 10 65	SHARPENERS, SKATE. Diamond.....per doz. \$1 50 Perfect..... 1 20	SQUEEZERS, LEMON. Common Wood....per doz. \$0 70 Porcelain Lined, Wood " 1 35 Boss, malleable iron " 1 30 Iron frame per'n bowl..... " 1 90 Iron frame, glass bowl..... " 2 35 Little Giant, tin'd iron..... " 4 00 Drum, japanned.... " 3 60 Drum, nickel plated. " 4 50
May. Wood, 16 Teeth.....\$4 00	Flooring. Diaston's D19, 16-in.... 24 50 " D19, 20-in.... 31 00	SHARPENERS, SKATE. Diamond.....per doz. \$1 50 Perfect..... 1 20	STAPLES. Blind. Barbed.....per lb. 21@22c Butter, Tub..... " 16@19c
RAZORS—SAFETY. Gillette.....per doz. \$4 00 Auto Strop..... " 4 00 Gem..... " 4 00 Gem (\$ doz. lots) " 3 00 Ever Ready..... " 3 40 Ever Ready (3 dz. lots) " 3 00	Hand and Rip. Diaston's No. 7, 20-in.... 19 30 " No. 7, 32-in.... 35 40 " No. 8, 16-in.... 17 55 " No. 8, 20-in.... 20 75 " No. 8, 24-in.... 24 40 " No. 8, 28-in.... 29 50 " No. 8, 30-in.... 32 95	SHARPENERS, SKATE. Diamond.....per doz. \$1 50 Perfect..... 1 20	STAPLES. Blind. Barbed.....per lb. 21@22c Butter, Tub..... " 16@19c
RAZOR STROPS. Star (Honing).....50%	Keystone.....New Nets	SHARPENERS, SKATE. Diamond.....per doz. \$1 50 Perfect..... 1 20	STAPLES. Blind. Barbed.....per lb. 21@22c Butter, Tub..... " 16@19c
REGISTER. Cast Iron.....20% Steel and Semi-Steel.....30% Baseboard.....30% Adjustable Ceiling Ventilators 30%	Miter Box. Diaston's No. 4, 4x20-in.. 36 15 " No. 4, 5x22-in.. 43 25 " No. 4, 6x22-in.. 47 20	SHARPENERS, SKATE. Diamond.....per doz. \$1 50 Perfect..... 1 20	STAPLES. Blind. Barbed.....per lb. 21@22c Butter, Tub..... " 16@19c
REGISTER FACES. Japanned, Bronzed and Plated. 4x6 to 14x14.....30% 14x14 to 35x42.....50%	Patternmakers'. Diaston's 7 1/4-in..... 12 05	SHARPENERS, SKATE. Diamond.....per doz. \$1 50 Perfect..... 1 20	STAPLES. Blind. Barbed.....per lb. 21@22c Butter, Tub..... " 16@19c
REVOLVERS. Iver Johnson Safety Automatic Hammer.....Net Hammerless.....Net I. J. Model 199.....Net	Pruning. Diaston's No. 20.....\$18 75	SHARPENERS, SKATE. Diamond.....per doz. \$1 50 Perfect..... 1 20	STAPLES. Blind. Barbed.....per lb. 21@22c Butter, Tub..... " 16@19c
RINGS AND RINGERS. Ball. Copper.....2 1/4-in. 3-in. Per doz.....\$2 40 \$3 65 Peas's Improved Self- Fitting copper, .....doz. \$ 40 Steel, per doz..... 1 50 1 30	Star.....60%	SHARPENERS, SKATE. Diamond.....per doz. \$1 50 Perfect..... 1 20	STAPLES. Blind. Barbed.....per lb. 21@22c Butter, Tub..... " 16@19c
Mag. Blair's Rings.....per doz. \$ 75 Blair's Ringers..... " 1 00 Brown's Ringers..... " 72 Brown's Ringers..... " 1 00 HUP's Ringers..... " 1 00 Hill's Ring, boxes " 72 Major Rings..... " 60 Perfect Ringers..... " 1 50 Wolverine Rings..... " 1 10 Wolverine Ringers " 1 10	SCRAPERS. Box. Triangular, No. 6 per doz. \$6 25	SHARPENERS, SKATE. Diamond.....per doz. \$1 50 Perfect..... 1 20	STAPLES. Blind. Barbed.....per lb. 21@22c Butter, Tub..... " 16@19c
Fruit Jar. White.....per lb. 30	Road. Cubic ft. 7 5 3 With runners, ea. \$7 00 6 50 6 20	SHARPENERS, SKATE. Diamond.....per doz. \$1 50 Perfect..... 1 20	STAPLES. Blind. Barbed.....per lb. 21@22c Butter, Tub..... " 16@19c
Key. Split, round.....per doz. \$0 17 Split, square.... " 32 Ball round..... " 40	SCREEN DOOR HINGES. Cast iron.....gross \$13 00 Steel..... " 2 50	SHARPENERS, SKATE. Diamond.....per doz. \$1 50 Perfect..... 1 20	STAPLES. Blind. Barbed.....per lb. 21@22c Butter, Tub..... " 16@19c
RIVETS. Copper Bolt....Add 15% to list Coppered Iron.....30% Tinnars'.....30%	SCISSORS. Star.....60%	SHARPENERS, SKATE. Diamond.....per doz. \$1 50 Perfect..... 1 20	STAPLES. Blind. Barbed.....per lb. 21@22c Butter, Tub..... " 16@19c
Name.....per lb. \$0 17	SCREWS. Bench. Iron, ins. 1 1 1/4 1 1/4 \$6 32 7 37 9 45 16 20 Wood, white maple, per doz. 6 00	SHARPENERS, SKATE. Diamond.....per doz. \$1 50 Perfect..... 1 20	STAPLES. Blind. Barbed.....per lb. 21@22c Butter, Tub..... " 16@19c
Slotted Clinch.....per doz. 60@1 10	Hand—Wood.....50%	SHARPENERS, SKATE. Diamond.....per doz. \$1 50 Perfect..... 1 20	STAPLES. Blind. Barbed.....per lb. 21@22c Butter, Tub..... " 16@19c
Tabular. Nos. 1 and 2 assorted sizes, 50 in box.....doz. 75c Nos. 1 and 2 assorted sizes, 16 in box.....doz. 1 40	Hand Rail.....22%	SHARPENERS, SKATE. Diamond.....per doz. \$1 50 Perfect..... 1 20	STAPLES. Blind. Barbed.....per lb. 21@22c Butter, Tub..... " 16@19c
ROPE. Cotton. 1/4, 5-16 in. Com. on reels, per lb.....80c 1/4, 5-16 in. Com. in colls, per lb.....80c	Jack.....30%	SHARPENERS, SKATE. Diamond.....per doz. \$1 50 Perfect..... 1 20	STAPLES. Blind. Barbed.....per lb. 21@22c Butter, Tub..... " 16@19c
Sisal. 1st Quality.....13 1/2c to 14 1/2c No. 2.....12 1/2c to 13 1/2c	Lag or Coach—all sizes, gimlet pointed.....45-50%	SHARPENERS, SKATE. Diamond.....per doz. \$1 50 Perfect..... 1 20	STAPLES. Blind. Barbed.....per lb. 21@22c Butter, Tub..... " 16@19c
Pure Manila. 1st Quality, base, per lb. .....15 1/2c to 16 1/2c Hardware Grade, per lb. .....14 1/2c to 15 1/2c	Saw—Centennial. Nos. 1 2 3 4 Per doz.....47c 55c 75c 90c	SHARPENERS, SKATE. Diamond.....per doz. \$1 50 Perfect..... 1 20	STAPLES. Blind. Barbed.....per lb. 21@22c Butter, Tub..... " 16@19c
Wood. F. H. Bright.....73 1/2-80% F. H. Blued.....70-80% F. H. Jap'd.....65-80% F. H. Brass.....65-80% R. H. Brass.....62 1/2-80%	Wood. F. H. Bright.....73 1/2-80% F. H. Blued.....70-80% F. H. Jap'd.....65-80% F. H. Brass.....65-80% R. H. Brass.....62 1/2-80%	SHARPENERS, SKATE. Diamond.....per doz. \$1 50 Perfect..... 1 20	STAPLES. Blind. Barbed.....per lb. 21@22c Butter, Tub..... " 16@19c
SCYTHES. Clipper, Grass.....per doz. \$13 50 Honest Dutchman..... " 13 00	Wood. F. H. Bright.....73 1/2-80% F. H. Blued.....70-80% F. H. Jap'd.....65-80% F. H. Brass.....65-80% R. H. Brass.....62 1/2-80%	SHARPENERS, SKATE. Diamond.....per doz. \$1 50 Perfect..... 1 20	STAPLES. Blind. Barbed.....per lb. 21@22c Butter, Tub..... " 16@19c
SPRINGS, DOOR. Nos. 2 3 4 5 6 7 Per doz. 55c 60c 65c 75c 80c 1 00	Wood. F. H. Bright.....73 1/2-80% F. H. Blued.....70-80% F. H. Jap'd.....65-80% F. H. Brass.....65-80% R. H. Brass.....62 1/2-80%	SHARPENERS, SKATE. Diamond.....per doz. \$1 50 Perfect..... 1 20	STAPLES. Blind. Barbed.....per lb. 21@22c Butter, Tub..... " 16@19c
Reliance. Light Medium Heavy Per doz. \$1 55 2 10 3 20 Torrey's.....da. doz. 1 65	Wood. F. H. Bright.....73 1/2-80% F. H. Blued.....70-80% F. H. Jap'd.....65-80% F. H. Brass.....65-80% R. H. Brass.....62 1/2-80%	SHARPENERS, SKATE. Diamond.....per doz. \$1 50 Perfect..... 1 20	STAPLES. Blind. Barbed.....per lb. 21@22c Butter, Tub..... " 16@19c
Bill Posters' 6-oz., 25 lb. boxes. per lb.....15c Upholsterers' 6-oz., 25-lb. boxes, per lb.....15 1/2c	Wood. F. H. Bright.....73 1/2-80% F. H. Blued.....70-80% F. H. Jap'd.....65-80% F. H. Brass.....65-80% R. H. Brass.....62 1/2-80%	SHARPENERS, SKATE. Diamond.....per doz. \$1 50 Perfect..... 1 20	STAPLES. Blind. Barbed.....per lb. 21@22c Butter, Tub..... " 16@19c
TACKS. Bill Posters' 6-oz., 25 lb. boxes. per lb.....15c Upholsterers' 6-oz., 25-lb. boxes, per lb.....15 1/2c	Wood. F. H. Bright.....73 1/2-80% F. H. Blued.....70-80% F. H. Jap'd.....65-80% F. H. Brass.....65-80% R. H. Brass.....62 1/2-80%	SHARPENERS, SKATE. Diamond.....per doz. \$1 50 Perfect..... 1 20	STAPLES. Blind. Barbed.....per lb. 21@22c Butter, Tub..... " 16@19c
WIRE. O. S. Elwood, No. 2 " " O. S. Elwood, No. 1 per doz. Nets	Wood. F. H. Bright.....73 1/2-80% F. H. Blued.....70-80% F. H. Jap'd.....65-80% F. H. Brass.....65-80% R. H. Brass.....62 1/2-80%	SHARPENERS, SKATE. Diamond.....per doz. \$1 50 Perfect..... 1 20	STAPLES. Blind. Barbed.....per lb. 21@22c Butter, Tub..... " 16@19c

Ceilings—Metal. Burton Co., W. J., Detroit, Mich. Friedley-Voshardt Co., Chicago, Ill. Hopson Co., W. C., Grand Rapids, Mich. Milwaukee Corrugating Co., Milwaukee, Wis. Northern Corrugating Co., Green Bay, Wis. Wheeling Corrugating Co., Wheeling, W. Va.	Enamels—Wood. Cornish & Co., J. B., Chicago, Ill. Federal Varnish Co., Chicago, Ill.	Heaters—Warm Air—Cont. May-Pieberger Furnace Co., Newark, Ohio Meyer Furnace Co., Peoria, Ill. Monitor Stove Co., Cincinnati, Ohio Monroe Fdy. & Furnace Co., Monroe, Mich.	Metals—Perforated. Harrington & King Perforating Co., Chicago, Ill.
Chain—Sash. Parker Supply Co., New York, N. Y.	Fence Gates. American Steel & Wire Co., Chicago, Ill.	Peerless Foundry Co., Indianapolis, Ind. Premier Warm Air Heater Co., Dowagiac, Mich. Rudy Furnace Co., Dowagiac, Mich. Rybolt Heater Co., Ashland, Ohio Scheible-Moncrief Heater Co., Cleveland, Ohio Schill Bros. Co., Crestline, Ohio Schwab & Sons Co., R. J., Milwaukee, Wis. Standard Furnace & Supply Co., Omaha, Neb. St. Louis Heating Co., St. Louis, Mo. Waterloo Register Co., Waterloo, Iowa Wellston Mfg. Co., Wellston, Ohio Wise Furnace Co., Akron, Ohio	Miters. Friedley-Voshardt Co., Chicago, Ill.
Chaplets. Fanner Mfg. Co., Cleveland, Ohio	Fenders. Meyers Mfg. Co., Fred J., Hamilton, Ohio	Nails—Slatting. Hussey & Co., C. G., Pittsburgh, Pa.	Nails—Wire. American Steel & Wire Co., Chicago, Ill.
Chisels. Vaughan & Bushnell Mfg. Co., Chicago, Ill.	Files. Heller Bros. Co., Newark, N. J.	Ornaments—Sheet Metal. Friedley-Voshardt Co., Chicago, Ill. Gerock Bros. Mfg. Co., St. Louis, Mo.	Patterns—Stove. Cleveland Castings Pattern Co., Cleveland, Ohio Quincy Pattern Co., Quincy, Ill. Shaw & Son Co., The Geo. E., Cleveland, Ohio Taft Metal Pattern & Mfg. Co., Cleveland, Ohio Vedder Pattern Works, Troy, N. Y.
Clips—Damper. Carr Supply Co., Chicago, Ill. Waterloo Register Co., Waterloo, Iowa	Flux—Aluminum. Roesch, Geo. E., Aurora, Ill.	Holders—Flag Pole. Enterprise Mfg. Co. of Pa., Philadelphia, Pa.	Pipe and Fittings—Furnace. Carr Supply Co., Chicago, Ill. Central Heating Supply Co., Chicago, Ill. Henry Furnace & Fdy. Co., Cleveland, Ohio Lamneck Co., W. E., Columbus, Ohio Manny Heating Supply Co., Chicago, Ill. Meyer & Bro. Co., F., Peoria, Ill. Michigan Safety Furnace Pipe Co., Detroit, Mich. Standard Furnace & Supply Co., Omaha, Neb.
Coal Chutes. Peerless Foundry Co., Indianapolis, Ind. Sykes Co., The, Chicago, Ill.	Freezers—Ice Cream. North Bros. Mfg. Co., Philadelphia, Pa.	Horse Shoes. American Steel & Wire Co., Chicago, Ill.	Pipe and Fittings—Stove. Hemp & Co., St. Louis, Mo. Meyer & Bro. Co., F., Peoria, Ill. Sullivan-Gelger Co., Indianapolis, Ind.
Consters. The Auto-Wheel Coaster Co., Inc., No. Tonawanda, N. Y.	Furnace Rings. Independent Reg. & Mfg. Co., Cleveland, Ohio Walworth Run Fdy. Co., Cleveland, Ohio	Humidifiers. Haynes, Kansas City, Mo.	Incubators. Queen Incubator Co., Lincoln, Nebr.
Cores—Radiator, Auto Curfman Mfg. Co., F. L., Maryville, Mo. G. & O. Mfg. Co., New Haven, Conn.	Garages—Metal. Wellman Supply Co., Springfield, Mass.	Incubators. Queen Incubator Co., Lincoln, Nebr.	Indoor Closet. Independent Reg. & Mfg. Co., Cleveland, Ohio
Cornices. Burton Co., W. J., Detroit, Mich. Friedley-Voshardt Co., Chicago, Ill. Milwaukee Corrugating Co., Milwaukee, Wis.	Guards—Fire. Meyers Mfg. Co., Fred J., Hamilton, Ohio	Jobbers—Hardware. Bullard & Gormley Co., Chicago, Ill. Clark-Smith Hardware Co., Peoria, Ill.	Kitchen Utensils. Lalanc & Grosjean Mfg. Co., Chicago, Ill.
Out-Ofs—Rain Water. Sullivan-Gelger Co., Indianapolis, Ind.	Hammers. Vaughan & Bushnell Mfg. Co., Chicago, Ill.	Lath—Expanded Metal Milwaukee Corrugating Co., Milwaukee, Wis.	Machines—Crimping. Bertach & Co., Cambridge City, Ind. Niagara Machine & Tool Works, Buffalo, N. Y.
Dry Paste. Carr Supply Co., Chicago, Ill.	Handles—Boiler. Berger Bros. Co., Philadelphia, Pa.	Machinery—Culvert. Bertach & Co., Cambridge City, Ind.	Machines—Razor Blades. Hyfield Mfg. Co., New York, N. Y.
Dumb Waiters. Sedgwick Machine Works, New York, N. Y.	Handles—File. Parker Supply Co., New York, N. Y.	Machines—Razor Blades. Hyfield Mfg. Co., New York, N. Y.	Machines—Steel Pipe. Hemp & Co., St. Louis, Mo.
Eaves Trough. Abbott Mfg. Co., Cleveland, Ohio Berger Bros. Co., Philadelphia, Pa. Burton Co., The W. J., Detroit, Mich. Clark-Smith Hardware Co., Peoria, Ill. Lupton's Sons Co., David, Philadelphia, Pa. Milwaukee Corrugating Co., Milwaukee, Wis. Northern Corrugating Co., Green Bay, Wis.	Hangers—Eaves Trough. Abbott Mfg. Co., Cleveland, Ohio W. C. Hopson Co., Grand Rapids, Mich.	Machines—Tin Smiths'. Bertach & Co., Cambridge City, Ind. Drels & Krump Mfg. Co., Chicago, Ill. Hemp & Co., St. Louis, Mo. Knodler, Frederick J., Philadelphia, Pa. Maplewood Machinery Co., Chicago, Ill. Marshalltown Mfg. Co., Marshalltown, Iowa Niagara Machine & Tool Works, Buffalo, N. Y. Whitney Mfg. Co., W. A., Rockford, Ill.	Machinery—Culvert. Bertach & Co., Cambridge City, Ind.
Elbows and Shoes—Conductor. American Rolling Mill Co., Middletown, Ohio Dieckmann Co., Ferdinand, Cincinnati, Ohio Lupton's Sons Co., David, Philadelphia, Pa. Milwaukee Corrugating Co., Milwaukee, Wis.	Heaters—School Room. Haynes-Langenberg Mfg. Co., St. Louis, Mo. Meyer Furnace Co., Peoria, Ill. Monroe Fdy. & Furnace Co., Monroe, Mich. Peerless Foundry Co., Indianapolis, Ind. Standard Furnace & Supply Co., Omaha, Neb.	Machinery—Culvert. Bertach & Co., Cambridge City, Ind.	Machines—Tin Smiths'. Bertach & Co., Cambridge City, Ind. Drels & Krump Mfg. Co., Chicago, Ill. Hemp & Co., St. Louis, Mo. Knodler, Frederick J., Philadelphia, Pa. Maplewood Machinery Co., Chicago, Ill. Marshalltown Mfg. Co., Marshalltown, Iowa Niagara Machine & Tool Works, Buffalo, N. Y. Whitney Mfg. Co., W. A., Rockford, Ill.
Elevators—Hand and Power. Kimball Bros. Co., Council Bluffs, Iowa Sedgwick Machine Works, New York, N. Y.	Heaters—Warm Air. American Furnace Co., St. Louis, Mo. Black Diamond Furnace Co., Monmouth, Ill. Carr Supply Co., Chicago, Ill. Central Heating Supply Co., Chicago, Ill. Cooperative Foundry Co., Rochester, New York Forest City Fdy. & Mfg. Co., Cleveland, Ohio Haynes-Langenberg Mfg. Co., St. Louis, Mo. Hall-Neal Furnace Co., Indianapolis, Ind. Hammond Heating Co., Cincinnati, Ohio Henry Furnace & Fdy. Co., Cleveland, Ohio Hess-Snyder Co., Massillon, Ohio Independent Stove Co., Owosso, Mich. Lennox Furnace Co., Marshalltown, Iowa Mahoning Fdy. Co., Youngstown, Ohio Manny Heating Supply Co., Chicago, Ill.	Machinery—Culvert. Bertach & Co., Cambridge City, Ind.	Machines—Tin Smiths'. Bertach & Co., Cambridge City, Ind. Drels & Krump Mfg. Co., Chicago, Ill. Hemp & Co., St. Louis, Mo. Knodler, Frederick J., Philadelphia, Pa. Maplewood Machinery Co., Chicago, Ill. Marshalltown Mfg. Co., Marshalltown, Iowa Niagara Machine & Tool Works, Buffalo, N. Y. Whitney Mfg. Co., W. A., Rockford, Ill.
Enamel—Iron. Black Silk Stove Polish Works, Sterling, Ill.	Heaters—Warm Air. American Furnace Co., St. Louis, Mo. Black Diamond Furnace Co., Monmouth, Ill. Carr Supply Co., Chicago, Ill. Central Heating Supply Co., Chicago, Ill. Cooperative Foundry Co., Rochester, New York Forest City Fdy. & Mfg. Co., Cleveland, Ohio Haynes-Langenberg Mfg. Co., St. Louis, Mo. Hall-Neal Furnace Co., Indianapolis, Ind. Hammond Heating Co., Cincinnati, Ohio Henry Furnace & Fdy. Co., Cleveland, Ohio Hess-Snyder Co., Massillon, Ohio Independent Stove Co., Owosso, Mich. Lennox Furnace Co., Marshalltown, Iowa Mahoning Fdy. Co., Youngstown, Ohio Manny Heating Supply Co., Chicago, Ill.	Machinery—Culvert. Bertach & Co., Cambridge City, Ind.	Machines—Tin Smiths'. Bertach & Co., Cambridge City, Ind. Drels & Krump Mfg. Co., Chicago, Ill. Hemp & Co., St. Louis, Mo. Knodler, Frederick J., Philadelphia, Pa. Maplewood Machinery Co., Chicago, Ill. Marshalltown Mfg. Co., Marshalltown, Iowa Niagara Machine & Tool Works, Buffalo, N. Y. Whitney Mfg. Co., W. A., Rockford, Ill.
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